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1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE NORTHERN DISTRICT OF
3 MISSISSIPPI, WESTERN DIVISION
4
5 FRED BECK, ET AL.,)
6 Plaintiffs,) No. 3:03C0-P-D
7 vs.)
8 KOPPERS, INC., ET AL.,)
9 Defendants.)
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14
15 JAMES DAHLGREN, M.D.
16 Santa Monica, California
17 Tuesday, August 2, 2005
18 Volume VI
19
20
21
22 Reported by:
23 DIANA JANNIERE
24 CSR NO. 10034
25 L.A. JOB No. 912646

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1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE NORTHERN DISTRICT OF
3 MISSISSIPPI, WESTERN DIVISION
4
5 FRED BECK, ET AL.,)
6 Plaintiffs,) No. 3:03C0-P-D
7 vs.)
8 KOPPERS, INC., ET AL.,)
9 Defendants.)
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14
15 DEPOSITION of JAMES DAHLGREN, M.D., Volume
16 VI, taken on behalf of Defendants at 1700 Ocean Avenue,
17 Santa Monica, California, beginning at 9:10 a.m., and
18 ending at 12:15 p.m., Tuesday, August 2, 2005, before
19 Diana Janniere, Certified Shorthand Reporter No. 10034.
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1	INDEX (Continued):	1	between the benzo(a)pyrene adducts, I believe, that is
2		2	in here somewhere and the MDA adducts.
3	EXHIBITS	3	Q Okay. Just to start then, are you aware of any
4	DEFENDANTS' PAGE	4	evidence that Sherrie Barnes had lipid
5	218 Adduct - Attorney Copy 1101	5	peroxidation-induced DNA adducts?
6	219 Ashalt - Attorney Copy 1101	6	A No. Those tests weren't done on her.
7	220 Coal Tar - Attorney Copy 1103	7	Q So this was really more a mechanism paper and
8	221 Cigarette Tar - Attorney Copy 1103	8	just generally interesting about the potential mechanism
9	222 Naphthalene - Attorney Copy 1104	9	for breast cancer?
10	223 Miscellaneous - Attorney Copy 1105	10	A Lipid peroxidation can occur from a lot of
11	224 PCP - Attorney Copy 1105	11	different types of environmental chemicals. The
12	225 Dr. Dahlgren's Affidavit 1106	12	sentence which, I think, is the most important in this
13	226 Health Effects on Nearby Residents	13	paper is at the bottom of the right-hand column 709,
14	of a Wood Treatment Plant 1146	14	first sentence of the last paragraph where it says,
15	227 3/2/01 Letter to Dr. Dahlgren	15	"The observation that patients with
16	from Ms. Cockcroft 1148	16	the BP-like adduct had significantly
17		17	higher levels of MDA-related adducts
18		18	than those without the BP-like adduct
19		19	may suggest an interaction between
20		20	that environmental carcinogen
21		21	exposure and lipid peroxidation."
22		22	Q So there is a suggestion of that interaction,
23		23	but this article does not by itself identify that
24		24	interaction or how it occurs?
25		25	A Correct.
	1077		1079
1	Santa Monica, California, Tuesday, August 2, 2005	1	Q The next document is deposition Exhibit 209.
2	9:10 A.M. - 12:15 P.M.	2	This is an article by Weisburger, W-E-I-S-B-U-R-G-E-R,
3		3	et al., from 2002, Comments on the History and
4	JAMES DAHLGREN, M.D.,	4	Importance of Aromatic and Heterocyclic Amines in Public
5	having been duly sworn, testified as follows:	5	Health.
6		6	(Defendants' Exhibit 209 was marked
7	FURTHER EXAMINATION	7	for identification by the court
8	BY MR. HOPP:	8	reporter.)
9	Q Dr. Dahlgren, I am handing you what we have	9	BY MR. HOPP:
10	marked as deposition Exhibit 208. This is a paper by	10	Q Did you rely on this paper in forming your
11	Wang, et al, W-A-N-G, from September, 1996 entitled	11	opinions in this case?
12	Lipid Peroxidation-induced Putative Malondialdehyde-DNA	12	A Well, I think this paper probably doesn't have
13	Adducts in Human Breast Tissues.	13	to be included in our list. It is a little bit further
14	(Defendants' Exhibit 208 was marked	14	from the main topic of our case here.
15	for identification by the court	15	Q Okay. One of the things he talked about is
16	reporter.)	16	meat eaters have a higher risk of breast and colon
17	BY MR. HOPP:	17	cancer?
18	Q Did you rely on this paper for formulating your	18	A Yes. That has been suggested in some studies,
19	report in this case?	19	correct. And that the nitrosamines and aromatic and
20	A Well, it is not as important as most of the	20	heterocyclic amines.
21	other papers. It is just an interesting observation	21	In other words, it is possible that these types
22	that there is some other mechanisms by which the cancer	22	of chemicals would be formed in this case when you heat
23	can be induced; mainly, this so-called lipid	23	up PAHs in the presence of nitrogen.
24	peroxidation, which is due to oxidative stress.	24	Q Okay.
25	And it also has some data on the relationship	25	A You would form these compounds and the
	1078		1080

<p>1 formation of these would be theoretically possible, but 2 I don't think we need to dwell on that at this point. 3 Q This article is hypothesizing that there is 4 something in cooked food that might increase the risk of 5 breast cancer? 6 A It is well-known that when you cook meat or 7 smoke it that nitrosamines are formed. It is one of 8 those naturally occurring things that has been known for 9 a long time to be a potential source of a carcinogenic 10 exposure. 11 The point is human beings have made eating 12 cooked meat for years and have built up some probably 13 good defenses for that source. So the nitrosamines 14 probably get broken down in the gut and there really 15 doesn't appear to be a carcinogenic effect from that 16 source. And it continues to receive attention. And in 17 this case, Dr. Weisburger chose to do a review on that 18 topic. 19 Q Let's look at deposition Exhibit 210. This is 20 a paper by Zhu, Z-H-U, in 2003 entitled Detection of 21 2-Amino-1-Methyl-6-Phenylimidazol [4,5-b]-Pyridine-DNA 22 Adducts in Normal Breast Tissue and Risk of Breast 23 Cancer. 24 (Defendants' Exhibit 210 was marked 25 for identification by the court</p> <p style="text-align: right;">1081</p>	<p>1 emphasize is that it is different to ingest these things 2 where the gut can work on them and break them down, as 3 opposed to inhaling them in the air, where you would 4 have a different type of reaction. 5 Things which are really benign when you eat 6 them. If they are in the air, it is attached to a 7 particulate. They would have a much different effect. 8 And this group here is just pointing out that 9 they are finding these chemicals. The diet may be the 10 source of these adducts in the breast. 11 And, you know, I don't know if they dwell on 12 the issue that I am bringing up, which is that these 13 could be formed in the process that goes on in a wood 14 treatment plant, where you've got heating going on, with 15 a whole host of nitrogen sources, and polycyclic 16 aromatic sources, which could then form these types of 17 heterocyclic amines. 18 Q What are the nitrogen sources in the wood 19 treatment process? 20 A Nitrogen is always present in the air. When 21 you burn something, you create oxides of nitrogen. So 22 it is a natural constituent of combustion. 23 Q Let's look at Exhibit 211. This is Petralia. 24 It is a Petralia paper from 1998 entitled Occupational 25 Risk Factors for Breast Cancer Among Women in Shanghai.</p> <p style="text-align: right;">1083</p>
<p>1 reporter.) 2 BY MR. HOPP: 3 Q Quite a mouthful. Did you rely on this paper 4 for the purpose of formulating your opinions in this 5 case? 6 A I think that this falls into the same category 7 as the prior paper. Basically, it is theoretically 8 possible that the polycyclic aromatic hydrocarbons form 9 into these nitrosamine-type compounds, heterocyclic 10 amines. 11 In other words, amines can be formed, but it is 12 not directly -- In other words, we haven't established 13 that. That is a theoretical possibility that we 14 discussed a minute ago and this paper would be relevant 15 to that possibility. 16 But, unfortunately, or whatever, we haven't had 17 the time or resources to actually look for these 18 compounds and to see if they were present or not. 19 Q And, again, just so we are clear, this paper, 20 the Zhu paper, Exhibit 210, deals with the effect of 21 some compounds which is found in cooked meats and its 22 potential for increasing breast cancer risk; is that 23 right? 24 A Yes. One source of heterocyclic amines would 25 be cooked meat. I think the important point to</p> <p style="text-align: right;">1082</p>	<p>1 (Defendants' Exhibit 211 was marked 2 for identification by the court 3 reporter.) 4 BY MR. HOPP: 5 Q Did you rely on this paper in formulating your 6 opinions in this case? 7 A Well, they identify an increased risk in breast 8 cancer which is kind of interesting. Not only did they 9 find it in the upper classes like we talked about 10 before, but they also found a link to organic solvents 11 and benzene, in particular. 12 So it would suggest that one of the things that 13 cause lipid peroxidation is organic solvent exposures. 14 And most of the studies we have discussed of benzene 15 have looked at men because it has been in occupational 16 studies. This is one of the few studies that looked at 17 woman with benzene exposure. 18 So I think the reason that is in here is 19 because benzene has been found in the vapor at the 20 Koppers' facility. And that, therefore, this paper 21 would be relevant to that observation. 22 Q Do you know -- I'm sorry. Did I interrupt you? 23 A No, that's it. 24 Q Do you know if Sherrie Barnes' exposure to 25 benzene in the Koppers' plant has ever been measured or</p> <p style="text-align: right;">1084</p>

1 modeled or otherwise calculated?

2 A No, there hasn't been a calculation of the

3 amount of benzene that reached the various plaintiffs.

4 All we know is that it was one of the constituents that

5 was measured by Koppers in the industrial hygiene

6 analysis of the vapor and benzene concentrations were

7 pretty high. So we can say without quantifying it.

8 We can say qualitatively that part of the air

9 population reaching Sherrie Barnes and the others would

10 have contained benzene, probably higher than the

11 background levels that are present in the rural

12 Mississippi area normally.

13 Q Does Petralia in her paper indicate what level

14 of exposure is necessary to increase the risk of breast

15 cancer?

16 A I don't think she has any data on that

17 question. They simply have the qualitative indication

18 of what they called high and low. Let me just see.

19 I think level one, level two, level three

20 benzene exposures, and this was if you look at the

21 methods, they had a method of estimating the exposure.

22 They had a job exposure matrix for benzene

23 exposure --

24 Q Okay.

25 A -- which was the subject of another paper that

1085

1 they stated here was -- had been submitted. And I don't

2 think I have seen that paper yet, but --

3 Q So she uses job classification as a surrogate

4 for exposure level?

5 A That's correct.

6 Q And what jobs, if we can tell from the coding,

7 did she put in this high exposure category for benzene?

8 Is it rubber workers? I am looking at Page

9 480. This is the first full paragraph. It says,

10 "Our results suggested that rubber

11 manufacturing makers may have an

12 excess of breast cancer. Exposures

13 in this industry include solvents,

14 particularly benzene."

15 Did she find any other industrial occupations

16 were --

17 A She does not mention the others. She just

18 described that using a job matrix they were able to

19 estimate exposures in the high, medium, and low

20 categories. And that is the subject of another paper

21 that we don't seem to have a copy of so --

22 Q Okay. And then she finds increases of breast

23 cancer among women who are professional and presumably

24 in higher social, economic status, like research

25 workers, medical and public health workers, economists;

1086

1 and financial planners?

2 A Yes. Similar to what we had talked about

3 yesterday, upper, social economic groups have a higher

4 rate of breast cancer.

5 Q Is this a review paper?

6 A No. This is an actual data paper.

7 Q Actual data paper.

8 Next one is deposition Exhibit 212. This is a

9 paper by Mary Wolf, W-O-L-F, 1996 entitled Breast Cancer

10 and Environmental Risk Factors: Epidemiological and

11 Experimental Findings.

12 (Defendants' Exhibit 212 was marked

13 for identification by the court

14 reporter.)

15 BY MR. HOPP:

16 Q And this is a review paper; right?

17 A Yes. I don't believe she has any new data in

18 here. Let me just double-check that point.

19 Yeah. One of her major points here is the

20 business of when the exposure takes place has a great

21 deal to do with the onset of breast cancer, and she

22 reviews the radiation issue where she points out that --

23 and she points out the data that shows that the time of

24 exposure is very important.

25 We talked about that yesterday. It is a paper

1087

1 to go through the data on radiation, electromagnetic

2 fields, and the issue of organochlorines, which had been

3 the subject of her prior studies prior to this.

4 Q And what is her conclusion in regard to the

5 timing of environmental exposure?

6 A Well, let me just look at the section here. It

7 says, "The window of time between age at

8 Menarche and age at first full-term

9 pregnancy has been identified as a

10 time when breast tissue may be more

11 susceptible to damage from chemical

12 carcinogens. Certain critical

13 periods of time have been posed as

14 important for tumor development and

15 latency, with respect to hormonally

16 dependent and other kind of cancer."

17 She goes on and talks more about examples, the

18 DMBA animal studies, epidemiologic evidence of

19 environmental agents. She has a whole discussion about

20 this issue. I don't know if you can say one thing about

21 it.

22 Q Okay. But your main interest in this paper for

23 purpose of your opinions was this issue of timing of

24 exposure?

25 A Yes, I think it's useful in that respect. She

1088

<p>1 is focusing on that and pointing out that in order to 2 understand the exposures in relation to the disease, you 3 need to take into account timing.</p> <p>4 MR. HOPP: Let's mark this one as 213. 5 (Defendants' Exhibit 213 was marked 6 for identification by the court 7 reporter.)</p> <p>8 THE WITNESS: By the way, I may want to 9 emphasize this point that she makes. I don't know if we 10 actually pulled the original reference, but she refers 11 to a study by Palmer, which showed that women who 12 started smoking prior to age 16 had a much higher risk 13 for breast cancer than those that began smoking -- well, 14 age 16, the risk was high and was even higher if they 15 were -- started before the age 14.</p> <p>16 BY MR. HOPP:</p> <p>17 Q Okay.</p> <p>18 A So this critical timing issue had a parallel to 19 something that very similar to what our exposure was 20 which was mainly the cigarette smoking.</p> <p>21 Q And has there been any follow-up studies on 22 that subject since 1996 when Wolf published her work?</p> <p>23 A I haven't looked to see if there has been 24 subsequent papers done on that point.</p> <p>25 Q Do you know whether it was generally accepted</p> <p style="text-align: right;">1089</p>	<p>1 paper in forming your opinions in this case?</p> <p>2 A Yes, definitely. I think it is relevant to the 3 issues at hand.</p> <p>4 Q How so?</p> <p>5 A Well, it showed an increased rate of cancer and 6 other health effects around the plant. Showing that the 7 air pollution generated by this type of facility, does 8 impact the health of the neighbors.</p> <p>9 Q They found an increased cancer incidences -- I 10 am looking at Page 8 -- for cancer of the larynx, and 11 cancer of the trachia, bronchus, and lung. They say it 12 was statistically elevated?</p> <p>13 A That's right.</p> <p>14 Q They did not find an increased risk of breast 15 cancer; right?</p> <p>16 A I don't believe they mentioned it here. If we 17 look at the tables, it might give us more information 18 about that.</p> <p>19 I don't think they studied breast cancer. If I 20 look at the tables, I don't see it mentioned. I think 21 if we look at the methods, we will see that they -- 22 anyway, they did not look at breast cancer. There is no 23 data on breast cancer on this paper. So they did not 24 look at it.</p> <p>25 Q Okay. They list ICD codes for malignant</p> <p style="text-align: right;">1091</p>
<p>1 whether beginning smoking at an early age does increase 2 a person's risk of breast cancer or is it something that 3 has been extensively studied or whether there just a few 4 literature --</p> <p>5 A I don't know whether it has been extensively 6 studied. I don't know.</p> <p>7 Q Okay. Let's look at 213. 213 is Burns and 8 McDonnell, M-C-D-O-N-N-E-L-L. This is an unpublished 9 paper; is that correct?</p> <p>10 A That's correct. It never got published.</p> <p>11 Q How did you get your hands on this one? Did it 12 come through the Kerr-McGee litigation?</p> <p>13 A That's correct. It was part of the discovery 14 in that case.</p> <p>15 Q And this appears to be -- well, the title is 16 Health Profile for Forest Products Division Facility 17 Kerr-McGee Chemical Corporation, Kansas City, Missouri, 18 and it is dated May 11, 1992.</p> <p>19 Was Burns and McDonnell, to your knowledge, 20 some sort of consultant hired by Kerr-McGee?</p> <p>21 A Yes, exactly. They were required, as I 22 understand it by the state, before they could close the 23 facility, to do a study of the health impact of the 24 neighborhood around the wood treatment plant.</p> <p>25 Q And did you rely on this Burns and McDonnell</p> <p style="text-align: right;">1090</p>	<p>1 neoplasms of the breast, Page A-1, but you are saying 2 that breast cancer doesn't show up on any of the tables 3 as something that they studied?</p> <p>4 A Right. There is no data on breast cancer risk 5 in this study.</p> <p>6 Q So just to go back to complete our discussion 7 on Page 8, they look at both cancer incidence and 8 mortality and in neither category do they discuss breast 9 cancer; correct?</p> <p>10 A Well, let's see. Let's go to Table 3. They 11 did describe a lowered observed number of breast cancer. 12 They said it was significantly lower than actually 13 expected.</p> <p>14 Q Okay. Table 3, this is Mortality Data Observed 15 Versus Expected Deaths, 1985 to 1989. They had 117 16 observed and expected 135 for the state or 149.5 for the 17 county; right?</p> <p>18 A Yeah. In other words, I think I emphasized 19 yesterday whenever you do mortality studies, you tend to 20 have a problem because breast cancer frequently responds 21 to treatment so --</p> <p>22 Q Okay. So incidence is something that you might 23 look at?</p> <p>24 A Incidence of the disease rather than mortality 25 from the disease would be important. Whereas with lung</p> <p style="text-align: right;">1092</p>

<p>1 cancer, usually the incidences and the mortality are 2 tracked pretty close because it is pretty commonly 3 present. 4 But Table 3 is also a very gross estimate of 5 what was going on. Actually, they have -- the next page 6 has Morbidity Data on breast cancer, and, again, it was 7 lower. 8 Q This is Table 4; right? 9 A Right, Table 4. When they looked at 10 respiratory cancer, then it was significantly higher, 11 and that is what they discussed in the table that we 12 talked about before where the values were higher. 13 Q Did Burns and McDonnell control for cigarette 14 smoking? Do you know? 15 A No, they didn't. They assumed that the 16 prevalence of smoking was the same in various groups, 17 that there would be no reason to expect a different 18 prevalence rate or incidences of smoking or the amount 19 of smoking in their group. At least, there would be no 20 reason to think that that would be the case, but they 21 didn't have data on smoking. 22 Q But that is certainly possible that smoking 23 would be the same in the exposed group and the 24 comparison group, but smoking could have also been a 25 confounder in this study; is that right?</p> <p style="text-align: right;">1093</p>	<p>1 on which you have relied on for the purposes of your 2 opinions regarding breast cancer in this matter? 3 That is, have you done any additional work? 4 Should this bibliography be revised or augmented? 5 A Not that I can think of right this minute. 6 Nothing pops in my mind. I had not gone back and done 7 any additional digging since we provided this to you. 8 Q All right. Let's go through the others and ask 9 the same question. 10 This is deposition Exhibit 215. It is entitled 11 Dioxin - Attorney Copy. 12 (Defendants' Exhibit 215 was marked 13 for identification by the court 14 reporter.) 15 BY MR. HOPP: 16 Q Is this up-to-date? 17 A Yes. This, obviously, addresses issues other 18 than breast cancer. 19 Q Right. And I have only shown you for the 20 purpose of this deposition some general articles and 21 articles related to breast cancer. 22 But the question is, is for the purpose of this 23 litigation, generally, is Exhibit 215 up-to-date, and 24 does it contain all of your references for dioxin at 25 least as of today?</p> <p style="text-align: right;">1095</p>
<p>1 A Well, if you look at another one of the cancers 2 that is associated with smoking; namely, bladder 3 cancer -- I don't know if they -- at least in Table 4, 4 the urinary organ rates were not significantly higher. 5 And if it was smoking related, you would expect to see 6 that. 7 There is really -- you know, anything is 8 possible, but there is really no reason to say that this 9 excess was related to the smoking. I mean, there is -- 10 as you say, it is possible that that would explain it, 11 but there would be no reason to invoke that at this 12 point. 13 Q Okay. Just sort of a housekeeping exercise, I 14 would like to go through the various portions of your 15 bibliography that you produced on -- you produced it to 16 me on May 9th, but it is dated May 6th and just identify 17 these. 18 I am handing you the portion of your 19 bibliography entitled Breast Cancer - Attorney Copy. 20 This is deposition Exhibit 214. 21 (Defendants' Exhibit 214 was marked 22 for identification by the court 23 reporter.) 24 BY MR. HOPP: 25 Q Is this an up-to-date listing of the articles</p> <p style="text-align: right;">1094</p>	<p>1 A Actually, there should be an additional 2 reference in here which I just noticed. 3 Q Okay. 4 A It is the Schecter Second Edition of his book 5 on dioxins which I believe is 2003. We have got the '94 6 edition listed here but not the latest edition. So that 7 book should be added in the list. 8 Q Let me identify it, Schecter? 9 A Page 8. 10 Q Dioxins and Health; that is the name of the 11 book? 12 A Yes. This is the '94 edition, but there is a 13 later edition which should be included in this 14 bibliography. 15 Q All right. Exhibit 216 is the portion of your 16 bibliography entitled Creosote -- it is entitled 17 Creosote - Attorney Copy, and it is, again, dated May 6, 18 2005. 19 (Defendants' Exhibit 216 was marked 20 for identification by the court 21 reporter.) 22 BY MR. HOPP: 23 Q Is this up-to-date at least up through today? 24 A I probably should add -- I just thought of this 25 when you asked me that question -- the Creosote Council</p> <p style="text-align: right;">1096</p>

1 and Study.
2 Q Which one is that?
3 A It is not listed here, but the Creosote Council
4 did a study on worker exposures.
5 Q Is that the risk assessment?
6 A Well, it was prepared, I think, for purposes of
7 the EPA's risk assessment, but it is basically an
8 exposure study.
9 Q Okay.
10 A And they went in and quantified the amount of
11 creosote constituents that the workers sustained to, you
12 know, give some idea of what the exposures were and then
13 calculated from that what their cancer risk was.
14 Q Was that the study where they used a whole body
15 dosimeter?
16 A Yes.
17 Q I'm not sure what the title of it is.
18 A I think it is Creosote Council or Creosote
19 Exposure Study or something like that anyway.
20 Q So the method -- they put some sort of cotton
21 suit or underwear on these workers and made them work a
22 full work shift and then took the cotton suit and then
23 analyzed it for the constituents of creosote?
24 A That's right, among other things. They did
25 some air measurements. Urine measurements as well.

1097

1 Q And how, if at all, is that paper relevant to
2 your opinions regarding Sherrie Barnes?
3 A Well, I think what it illustrates is the
4 importance of skin absorption as a route of exposure for
5 creosote and the particulates and the vapors that would
6 occur -- now, remember, that Sherrie Barnes and her
7 fellow children have indicated that they used to play on
8 the wood that was curing in the yard at Koppers, where
9 they would have sustained skin absorption similar to the
10 workers. That route of exposure turns out based on that
11 creosote study and also the study that was done by --
12 Q Borax?
13 A -- Borax made that same point. That the
14 exposure of the skin is extremely important. In fact,
15 we should have Borax's paper on this list.
16 MR. PRUDOMME: It's not here?
17 MR. HOPP: Isn't it on --
18 THE WITNESS: Yeah, there it is.
19 MR. HOPP: Borax, 2002.
20 Q Borax, it was an interesting paper, but it
21 wasn't all that unique. I mean, hadn't Jongeneelen and
22 others done similar studies? In fact, you have got
23 Jongeneelen, J-O-N-G-E-N-E-E-L-E-N, 1998 listed here,
24 and I think Heikkila may have done some,
25 H-E-I-K-K-I-L-A.

1098

1 A Yeah.
2 Q There has been a series of studies of
3 1-hydroxypyrene as a marker for creosote exposure in
4 urine?
5 A Yeah, that's correct. But the point being, I
6 think, the Borax study and the Creosote Council Study's
7 was the main route of exposure seemed to be skin rather
8 than air.
9 Q And the way they did that was to take urine
10 samples from creosote wood-treating workers and analyzed
11 those for this 1-hydroxypyrene which is a metabolite of
12 creosote; is that right?
13 A Yes.
14 Q Have you or the other people -- other experts
15 or consultants working on this case done any urine tests
16 of any of the people in Grenada to see what their levels
17 of 1-hydroxypyrene are?
18 A No, that has not been done.
19 Q Could that be a particularly expensive test to
20 do a urine analysis for 1-hydroxypyrene?
21 A No, it is just not generally available. The
22 labs don't have it, and I could not find somebody to set
23 it up.
24 Q Did you investigate doing that test?
25 A Oh, I did. At one point, not for Koppers, but

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1 for one of the other creosote exposures, I tried to find
2 a lab that could do it and was unable to.
3 MR. HOPP: Okay. Let's mark this as Deposition
4 Exhibit 217.
5 (Defendants' Exhibit 217 was marked
6 for identification by the court
7 reporter.)
8 BY MR. HOPP:
9 Q Deposition Exhibit 217 is a portion of your
10 bibliography entitled Mixture - Attorney Copy, and again
11 dated May 6, 2005.
12 Is this up-to-date or do you think there are
13 papers that should be added to this list?
14 A Well, I don't have it in my memory banks right
15 at the moment on this point. There is an ongoing
16 publication of papers. I just don't have any specific
17 ones to add today.
18 Q And when you use the term mixture, part of what
19 you are talking about is this concept of synergy; is
20 that right?
21 A Well, synergy is one phenomenon and additive
22 effects is another and antagonism is another. Mixtures
23 are assumed to be additive using the default, but when
24 there is actual data on a -- on a compound, then you can
25 be more specific about which of the three phenomenon are

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<p>1 going on with the mixture.</p> <p>2 Q Okay.</p> <p>3 MR. HOPP: Okay. Showing what we have marked</p> <p>4 as deposition Exhibit 218.</p> <p>5 (Defendants' Exhibit 218 was marked</p> <p>6 for identification by the court</p> <p>7 reporter.)</p> <p>8 BY MR. HOPP:</p> <p>9 Q You have to excuse the markings on here. I</p> <p>10 didn't print out a clean copy. I think someone in my</p> <p>11 office circled some of your references.</p> <p>12 Is this document 218 an up-to-date bibliography</p> <p>13 of the adduct studies in which you relied upon for the</p> <p>14 purpose of this lawsuit or are there additional adduct</p> <p>15 studies that should be added?</p> <p>16 A I don't have anything to add at this time.</p> <p>17 MR. HOPP: Deposition Exhibit 219 is entitled</p> <p>18 Asphalt - Attorney Copy. And, again, this is dated May</p> <p>19 6, 2005.</p> <p>20 (Defendants' Exhibit 219 was marked</p> <p>21 for identification by the court</p> <p>22 reporter.)</p> <p>23 BY MR. HOPP:</p> <p>24 Q Why did you investigate asphalt as an exposure</p> <p>25 for the purpose of the Grenada creosote litigation?</p> <p style="text-align: right;">1101</p>	<p>1 of women is tiny.</p> <p>2 Q Sure. These are mainly occupational studies</p> <p>3 and there are not a lot of women in the occupations that</p> <p>4 deal with asphalt; is that correct?</p> <p>5 A That's correct.</p> <p>6 MR. HOPP: Deposition Exhibit 220 is entitled</p> <p>7 Coal Tar - Attorney Copy, again dated May 6, 2005.</p> <p>8 (Defendants' Exhibit 220 was marked</p> <p>9 for identification by the court</p> <p>10 reporter.)</p> <p>11 BY MR. HOPP:</p> <p>12 Q This is the portion of your bibliography that</p> <p>13 deals with coal tar. Is this portion of your</p> <p>14 bibliography up-to-date, or do you think there should be</p> <p>15 papers added?</p> <p>16 A No, I wouldn't add any.</p> <p>17 Q I'm sorry. Did you say --</p> <p>18 A Not today any way.</p> <p>19 Q Okay. Showing you deposition Exhibit 221.</p> <p>20 This is a portion of your bibliography entitled</p> <p>21 Cigarette Tar - Attorney Copy, dated May 6, 2005.</p> <p>22 (Defendants' Exhibit 221 was marked</p> <p>23 for identification by the court</p> <p>24 reporter.)</p> <p>25 BY MR. HOPP:</p> <p style="text-align: right;">1103</p>
<p>1 A Well, because the exposure of asphalt workers</p> <p>2 is similar to the exposure of creosote workers and the</p> <p>3 vapors and particulate associated with asphalt are very</p> <p>4 similar in their makeup to creosote.</p> <p>5 The difference being that if you look at -- oh,</p> <p>6 gosh, there is a paper -- I cannot remember the author's</p> <p>7 name right now, but he compared asphalt, creosote, cook</p> <p>8 ovens, and cigarette smoke -- four different PAH</p> <p>9 mixtures and did some calculations; and some experiments</p> <p>10 on animals to figure out which of the four was the most</p> <p>11 carcinogenic.</p> <p>12 And it turns out that cook ovens was the most</p> <p>13 carcinogenic, creosote the second, asphalt the third,</p> <p>14 and cigarette smoking the fourth.</p> <p>15 So when you look at the carcinogenic capacity</p> <p>16 of asphalt, it is less than creosote. So, I think, we</p> <p>17 can include, you know, any data that exists on asphalt</p> <p>18 workers to help understand what the health effects would</p> <p>19 be on the residents living near the Koppers' facility.</p> <p>20 Q Okay. As you look at this list -- and I know I</p> <p>21 have not shown you any of these asphalt papers, but are</p> <p>22 you aware of any of these asphalt papers which address</p> <p>23 the risk of breast cancer as a result of exposure to</p> <p>24 asphalt?</p> <p>25 A No, but I think as we talked before, the number</p> <p style="text-align: right;">1102</p>	<p>1 Q Is this portion of your bibliography</p> <p>2 up-to-date, or are there articles that you think should</p> <p>3 be added?</p> <p>4 A No, not to added at this time.</p> <p>5 MR. HOPP: Deposition Exhibit 222 is entitled</p> <p>6 Naphthalene - Attorney Copy, dated May 6, 2005.</p> <p>7 (Defendants' Exhibit 222 was marked</p> <p>8 for identification by the court</p> <p>9 reporter.)</p> <p>10 BY MR. HOPP:</p> <p>11 Q This is the portion of your bibliography that</p> <p>12 addresses naphthalene exposure. Is this up-to-date, or</p> <p>13 do you believe there are articles that should be added?</p> <p>14 A Nothing to add at this time.</p> <p>15 Q We have not spoken about this. Is naphthalene</p> <p>16 exposure a known risk factor for breast cancer?</p> <p>17 A No, it is not. It's carcinogenic in some</p> <p>18 animal test systems, but it is -- but it has not been</p> <p>19 studied in terms of risk of breast cancer.</p> <p>20 Q It has been shown to be carcinogenic to rats in</p> <p>21 a breathing study; correct?</p> <p>22 A Yes.</p> <p>23 Q And are rats obligate nose breathers?</p> <p>24 A Yes.</p> <p>25 Q And the naphthalene caused nasal carcinoma; is</p> <p style="text-align: right;">1104</p>

<p>1 that right?</p> <p>2 A I don't remember the --</p> <p>3 Q NPT study from 2000?</p> <p>4 A NPT study from 2000, you may be right, but I</p> <p>5 don't -- I don't remember if it was nose. I remember</p> <p>6 respiratory tract, but I don't remember if it was just</p> <p>7 the nose.</p> <p>8 Q And the NPT study is actually on your list, but</p> <p>9 we just happened to look at it?</p> <p>10 A Yes, that's correct.</p> <p>11 MR. HOPP: Deposition Exhibit 223 is entitled</p> <p>12 Miscellaneous - Attorney Copy, and it is dated May 6,</p> <p>13 2005.</p> <p>14 (Defendants' Exhibit 223 was marked</p> <p>15 for identification by the court</p> <p>16 reporter.)</p> <p>17 BY MR. HOPP:</p> <p>18 Q Is this portion of your bibliography up-to-date</p> <p>19 or are there articles that you think should be added?</p> <p>20 A Nothing to add at this time.</p> <p>21 MR. HOPP: Deposition Exhibit 224 is entitled</p> <p>22 PCP - Attorney Copy, dated May 6, 2005.</p> <p>23 (Defendants' Exhibit 224 was marked</p> <p>24 for identification by the court</p> <p>25 reporter.)</p> <p style="text-align: right;">1105</p>	<p>1 is a -- I believe, an ongoing exposure at the facility,</p> <p>2 and I don't know if this was in response to that or some</p> <p>3 other legal requirement. I just don't recall from</p> <p>4 memory.</p> <p>5 Q Did the attorneys at some point then ask you to</p> <p>6 execute an affidavit to help with some portion of the</p> <p>7 litigation?</p> <p>8 A Yes.</p> <p>9 Q And were you told what question to try to</p> <p>10 answer in the affidavit?</p> <p>11 A I don't recall specifically what question they</p> <p>12 asked me to answer. It looks like reading this through</p> <p>13 that it has a generic causation component when we talk</p> <p>14 about the contaminants, and then there is specific</p> <p>15 causation discussion when we talk about individual</p> <p>16 plaintiffs.</p> <p>17 Q Now, we talked now for several days about</p> <p>18 genetic causation and breast cancer, and very early on</p> <p>19 in the first session of your deposition, we talked a</p> <p>20 little more generally about genetic causation.</p> <p>21 Is there anything in this affidavit that</p> <p>22 reflects additional work or additional research that you</p> <p>23 have done in this case which is not reported in your</p> <p>24 expert report in the Grenada litigation or the testimony</p> <p>25 that you have given so far in deposition?</p> <p style="text-align: right;">1107</p>
<p>1 BY MR. HOPP:</p> <p>2 Q And PCP is an abbreviation for</p> <p>3 pentachlorophenol; correct?</p> <p>4 A Yes.</p> <p>5 Q Is this document up-to-date or do you think</p> <p>6 there should be articles that need to be added?</p> <p>7 A Nothing to add at this time.</p> <p>8 Q Do the articles listed on here, based on your</p> <p>9 memory, address an increased risk of breast cancer as a</p> <p>10 result of exposure to pentachlorophenol?</p> <p>11 A No, not as far as I can recall.</p> <p>12 MR. HOPP: I want to mark as our next</p> <p>13 Exhibit 225.</p> <p>14 (Defendants' Exhibit 225 was marked</p> <p>15 for identification by the court</p> <p>16 reporter.)</p> <p>17 BY MR. HOPP:</p> <p>18 Q And it is an affidavit that you executed</p> <p>19 recently relating to this Grenada creosote litigation;</p> <p>20 is that right?</p> <p>21 A Yes.</p> <p>22 Q How did this come up? How did you happen to be</p> <p>23 asked to execute an affidavit for whatever purpose you</p> <p>24 executed it?</p> <p>25 A I think it has to do with the fact that there</p> <p style="text-align: right;">1106</p>	<p>1 A You mean, is there other research or</p> <p>2 investigation that we have done?</p> <p>3 Q Yeah. Is there anything new here, or is this,</p> <p>4 basically, a reiteration of the points that you</p> <p>5 addressed in your report in your affidavit -- I'm</p> <p>6 sorry -- your report and your testimony?</p> <p>7 A Well, without reading this whole thing through,</p> <p>8 I'm not sure that I can answer that question. It says</p> <p>9 here Affidavit in Support of Injunctive Relief, so that</p> <p>10 is something to do with getting people out of the</p> <p>11 neighborhood, so that they don't have ongoing harmful</p> <p>12 exposure.</p> <p>13 So that was the question that was asked in this</p> <p>14 case. But whether or not there were things that are</p> <p>15 here that were not covered elsewhere, I cannot answer</p> <p>16 that before.</p> <p>17 Q I am not asking you whether it is covered here,</p> <p>18 but I mean, there is probably issues that you've raised</p> <p>19 here that I have not asked you about, but for the</p> <p>20 purpose -- let me strike that. Let me back up.</p> <p>21 In January of 2005, you submitted your expert</p> <p>22 report. Do you remember that?</p> <p>23 A Yes.</p> <p>24 Q And then in May of 2005, you executed this</p> <p>25 affidavit; is that right?</p> <p style="text-align: right;">1108</p>

<p>1 A That's right.</p> <p>2 Q Now, between the time that you did your expert</p> <p>3 report and the time that you submitted this affidavit,</p> <p>4 it appears at least that you have done some additional</p> <p>5 research and come up with some additional papers on</p> <p>6 these various subjects all that have been reflected in</p> <p>7 the bibliography that we have just marked as a series of</p> <p>8 exhibits; is that right?</p> <p>9 A Yes. We did some ongoing record -- what you</p> <p>10 call it? Library work, getting additional papers.</p> <p>11 Q All right. Other than that additional</p> <p>12 research, if you will, of getting additional papers to</p> <p>13 support your opinions that you have already stated in</p> <p>14 your report dated January 31, 2005, did you do any other</p> <p>15 work on this case between January and May of 2005?</p> <p>16 A I don't recall. I probably did do some, you</p> <p>17 know, some work on looking at environmental features,</p> <p>18 getting additional data on exposure parameters, possibly</p> <p>19 getting additional medical records on various people.</p> <p>20 So it is an ongoing process. I don't think it</p> <p>21 stopped just because we submitted the expert report.</p> <p>22 Q Okay. Let's talk about some specifics of your</p> <p>23 affidavit. Let's look at Paragraph 20. In the middle</p> <p>24 it says -- in the middle Paragraph 20, Page 4,</p> <p>25 deposition Exhibit 225.</p> <p style="text-align: right;">1109</p>	<p>1 and pentachlorophenol and dioxin measurements which,</p> <p>2 again, documented higher levels in the people who lived</p> <p>3 or had lived next to the plant.</p> <p>4 And studies done of other similarly-situated</p> <p>5 people living next to wood treatment plants, which is</p> <p>6 the study that we did on the Columbus, Mississippi</p> <p>7 residents next to the Kerr-McGee Forest Products plant</p> <p>8 in Columbus, Mississippi. And the study done by Burns</p> <p>9 and McDonnell on the people living next to the wood</p> <p>10 treatment plant in Kansas City, Missouri.</p> <p>11 And just plain common sense would tell you that</p> <p>12 if you live next to a facility that is using millions of</p> <p>13 pounds of chemicals on a yearly basis and those</p> <p>14 chemicals are volatile and they get into the air; and</p> <p>15 that there is also a particulate that gets into the air,</p> <p>16 there is going to be some amount of exposure that would</p> <p>17 take place for people living 100 yards away, as in this</p> <p>18 case. Many of the people lived in Carver Circle or</p> <p>19 other adjacent areas which were very, very close to the</p> <p>20 plant.</p> <p>21 So I think there is no doubt that these</p> <p>22 residents sustained high levels of exposure that would</p> <p>23 be significantly higher than background.</p> <p>24 Q Okay. Let's move on to Paragraph 22, where you</p> <p>25 talk about the relative paucity of health effects -- I'm</p> <p style="text-align: right;">1111</p>
<p>1 MR. PRUDOMME: I'm sorry. What page?</p> <p>2 MR. HOPP: Page 4, Paragraph 20.</p> <p>3 Q It says, "The residents of</p> <p>4 Grenada have been exposed to</p> <p>5 significant amounts of these</p> <p>6 chemicals in the Koppers Grenada</p> <p>7 plant."</p> <p>8 In the sentence above you talk about creosote,</p> <p>9 PAHs, pentachlorophenol contaminated with dioxins and</p> <p>10 furans. What is the basis for that statement?</p> <p>11 A Well, there is lots of basis. One is the</p> <p>12 residents report smelling creosote and experiencing</p> <p>13 symptoms from that exposure. That is, I believe, one</p> <p>14 piece of evidence.</p> <p>15 Secondly, the studies done by Koppers</p> <p>16 themselves on the level of contamination in the air of</p> <p>17 the plant, documents that the levels were significantly</p> <p>18 higher than background.</p> <p>19 And studies -- the modeling studies done by</p> <p>20 Dr. Sharma show that the discharge from the plant</p> <p>21 created a significant amount of material that reached</p> <p>22 the residents.</p> <p>23 The measurements in the soil and the house</p> <p>24 dust, by Dr. -- by Mr. Horseshack documented that these</p> <p>25 chemicals reached the people. We also did PAH adducts</p> <p style="text-align: right;">1110</p>	<p>1 sorry -- relative paucity of research on health effects</p> <p>2 of coal tar, creosote and then you go on to cite an</p> <p>3 ATSDR document. Is this the ATSDR toxicological profile</p> <p>4 of creosote, coal tar and other coal tar products?</p> <p>5 A Yes.</p> <p>6 Q And it is a combined document? It doesn't just</p> <p>7 address creosote, it also addresses coal tar and coal</p> <p>8 tar pitch; is that right?</p> <p>9 A Correct.</p> <p>10 Q Let's look at Paragraph 24. So the number 24</p> <p>11 is on Page 25, but the actual text of the paragraph is</p> <p>12 Page 6.</p> <p>13 You talk about the examination of</p> <p>14 epidemiological studies. The known biological health</p> <p>15 effects -- let me read it through the records.</p> <p>16 "Through an examination of</p> <p>17 epidemiological studies, the known</p> <p>18 biological health effects from coal</p> <p>19 tar creosote and an examination of</p> <p>20 animal studies, the weight of the</p> <p>21 evidence clearly supports the</p> <p>22 existence of a causal relationship</p> <p>23 between coal tar, creosote</p> <p>24 constituents and numerous adverse</p> <p>25 health effects including cancer,</p> <p style="text-align: right;">1112</p>

<p>1 birth defects, premature birth, 2 respiratory damage; skin itch; 3 gastric upset; immune system 4 alterations; and neurological 5 injury." 6 Are the epidemiologic studies referred to in 7 this paragraph and the animal studies referred to in 8 this paragraph reflected in the bibliography that we 9 have marked as a series of exhibits? 10 A I believe so, yes. 11 Q The next paragraph, 25, talks about PAH causing 12 damage to the DNA, are the studies -- strike that. 13 You rely on published studies for the purpose 14 of your statement in Paragraph 25 of your affidavit; is 15 that right? 16 A Yes. 17 Q And are the public studies that support your 18 statement in Paragraph 25 contained within your 19 bibliography that we have marked as a series of exhibits 20 in this deposition? 21 A Yes. 22 Q Paragraph 26, you talk about many hundreds of 23 studies have been published that identify and describe 24 the carcinogenicity of a variety of chemicals classified 25 as PAHs.</p>	<p>1 PAH exposure." 2 And we talked about a lot of that literature in 3 the last few days of this deposition. Is there any 4 literature that you are relying on for the purpose of 5 this Paragraph 27 that is not reflected in the 6 bibliography that we just marked as a series of 7 depositions? 8 A Not that I recall right at this moment. 9 Q Paragraph -- I'm sorry. Paragraph 30. I am 10 looking at the last sentence of Paragraph 30. This is 11 on Page 78. It says, "Higher PAH-DNA adduct. 12 Levels predict a higher cancer risk." 13 Wouldn't it be more accurate to say the higher 14 PAH-DNA adduct levels in the presence of certain 15 specific genetic polymorphisms predict a higher risk of 16 cancer? 17 A No. I think what the data shows as I 18 interpreted it. That if you have higher PAH-DNA adduct 19 levels, you are at a higher risk. You will have higher 20 PAH-DNA adduct levels if you have the polymorphism, 21 inability to repair them or whatever. 22 Q Paragraph 35, Page 9, talks about ingesting 23 dioxin and the congenital malformations and spontaneous 24 abortions and other effects. 25 Is the effects of dioxin -- is the effects of</p>
1113	1115
<p>1 Are those studies that you referred to in 2 Paragraph 26 set forth in the bibliography that we have 3 set forth as a series of exhibits in this deposition? 4 A I didn't include all of the studies on PAHs and 5 cancer. I mean, there are studies that go back to 1916 6 when the Japanese researcher -- I forget his name -- 7 painted some coal tar on the back of some rats or 8 mice -- I forget -- one of those rodents and induced 9 skin cancers. 10 And in subsequent years, I think probably it 11 would be more accurate to say they were probably not 12 hundreds, but thousands of studies on that subject. I 13 had not included all of those. 14 Q There were a lot of studies shown and I think 15 1916 was probably the earliest up through the '50's and 16 beyond, but where they painted mice with creosote and 17 coal tar fractions, so those studies were part of your 18 support for this statement? 19 A I have not looked at all of them, but if you 20 look at the bibliographies of the papers that I have 21 listed on those statements, it would pull all of that 22 forward. 23 Q Paragraph 27, it says, "There is ample. 24 Literature to support a causal 25 association between breast cancer and</p>	<p>1 ingesting dioxin dose dependent? 2 A Yes. 3 Q Paragraph 40 talks about -- and this is 4 Page 11 -- talks about the long-term effects of exposure 5 to low levels of pentachlorophenol. Is the long-term 6 effects of exposure to low levels of pentachlorophenol 7 dose dependent? 8 A Yes. 9 Q Your affidavit in Paragraphs 45 through the end 10 talks about specific plaintiffs in this lawsuit? 11 A Yes. 12 Q You do not -- strike that. 13 How did you pick which plaintiffs to put in 14 your affidavit because you don't talk about everyone? 15 A I believe these were part of this group that 16 was, I think, at that point or at some point, identified 17 to be the first people to go to trial. I think that is 18 what it was. 19 Q I am just curious. Sherrie Barnes, I don't 20 think is mentioned in the affidavit. Do you know of any 21 particular reason why you left Sherrie Barnes out? 22 A No, I don't. 23 Q You talk about Kay Hobbs beginning on Page 16. 24 I think beginning Paragraph 69. Now, Kay Hobbs is the 25 second of the plaintiffs in this case whose claims are</p>
1114	1116

1 going to go to trial. You are aware of that; is that
2 right?
3 A I have been told that, yes.
4 Q And I do have some specific questions about Kay
5 Hobbs that I would like to ask you this morning, but
6 generally speaking, the issue with Kay Hobbs is breast
7 cancer; is that right?
8 A Correct.
9 Q Are there any other health issues that you've
10 identified for Kay Hobbs that you believe were caused by
11 creosote prior to her diagnosis with breast cancer?
12 A I would have to look at the file to see.
13 Q Well, we will do that in a minute. Paragraphs
14 65 through 69, talk about some particular health
15 problems that Kay Hobbs had?
16 A Yes.
17 Q Are the health problems identified in Paragraph
18 65 through 69 -- strike that.
19 Did the health effects identified in Paragraph
20 65 through 69 occur before or after Kay Hobbs was
21 diagnosed with breast cancer?
22 A I don't recall. I would have to refer to the
23 file.
24 Q Let's move on to the file then. Let me show
25 you at least what we had previously marked as Deposition

1117

1 Q Right. We are dancing around this, but Kay
2 Hobbs after her diagnosis had some chemotherapy. She
3 had her final illness, and she died.
4 And a lot of the health issues you have
5 identified in your summary Deposition Exhibit 21 could
6 have been related to chemotherapy and her final illness;
7 correct?
8 A That's correct.
9 Q So the purpose of your opinions in this case,
10 your opinions on causation, is the focus for Kay Hobbs
11 really breast cancer?
12 A That's correct.
13 Q And it is not neurological effects or other
14 types of things; right?
15 A No. I don't think that is relevant. I mean,
16 there may have been some of that, but in her case, it is
17 not really -- we did not focus on that and tried to
18 tease that apart because it didn't seem to me that it
19 made a big difference.
20 Q Now, her history, did all come from her
21 husband; right?
22 A Yes.
23 Q Are husbands generally considered to be good at
24 giving histories for their wives?
25 A I don't know. I don't have any data on that

1119

1 Exhibit No. 12. And if you need more, please let me
2 know. We got I think the -- I'm sorry -- let me back
3 up.
4 Let me hand you what we have previously marked
5 as deposition Exhibit 21. This is your summary on Kay
6 Hobbs.
7 And we also had marked as an exhibit and we can
8 pull this if you would like, the -- I think it was --
9 the word you used was chart, the survey results that Kay
10 Hobbs' family filled out for the purpose of completing
11 your summary.
12 A Um-hmm.
13 Q But to the extent that Deposition Exhibit 21
14 helps, can you answer the question whether there are any
15 health issues with Kay Hobbs that predated her diagnosis
16 with breast cancer that you think are related to
17 creosote exposure?
18 A Well, as you know, we got the information from
19 her husband, and I am not sure that we can give an
20 answer to that. I mean, what he did was describe the
21 symptoms that she had been experiencing, but I believe
22 the symptoms he described were for the time frame up to
23 the time of her death. And I didn't obtain information
24 about how many of these symptoms were present before the
25 diagnosis of cancer.

1118

1 question.
2 Q I don't think I would be. So I was wondering
3 do you have any sense on whether or not you are going to
4 get a complete history or not?
5 A Well, he answered the questions as best he
6 could. I have no reason to criticize his reporting.
7 Q He gave you the best information he had?
8 A That's right.
9 Q Now, Kay Hobbs had three children; correct?
10 A Let's see. Total of three. That's right.
11 Q And I don't know if I have the names in the
12 report, but she had one child prior to the time she
13 married Walter Hobbs; is that right? She had a son?
14 A That was the oldest one Danrell Barnes, yes.
15 Q Then she had two daughters, I believe, with
16 Walter Hobbs; is that right?
17 A That's right.
18 Q You identify in your summary deposition
19 Exhibit 21, this is Page 6 of 13. The question is,
20 "Have you ever had a child with a birth defect?"
21 Do you see that?
22 A Yes.
23 Q And the answer is "yes." Do you know which
24 child that was and which birth defect?
25 A I think it was Deandre. She supposedly had

1120

<p>1 heart failure right after birth and -- let's see. Do we 2 have it right? Deandre -- that is one of her daughters; 3 isn't it? 4 Q I think so. 5 A No. Shamika had Deandre. That's right. So 6 Shamika was her daughter and Deandre was her 7 granddaughter. 8 Q Okay. 9 A I don't know if there was -- yeah. They may 10 have been speaking about Deandre, who was the 11 grandchild. 12 Q Shamika is the daughter. And I am looking at 13 Page 1. When Shamika was born, she had meningitis and 14 was quite ill. 15 A No, that is not the same as a birth defect. 16 Q Right. And when she gave birth to Deandre -- 17 and we may have a problem with the pronoun here, but 18 she in this sentence on Page 1 refers back to Shamika? 19 A Yes. Shamika went into heart failure. 20 Q So Shamika went into heart failure when she had 21 a baby? 22 A Yes. 23 Q And the last sentence in this paragraph says, 24 "They felt the stress of having a 25 child was so severe that it put a</p> <p style="text-align: right;">1121</p>	<p>1 of detail on that. 2 Q Again, the question is on 3 "What age did you begin 4 menstruation?" and you got "12." 5 Is that considered early? 6 A No. That is considered normal. 7 Q Following that section, you got cancer and a 8 long summary of medical records. Do you do all of your 9 own medical record summaries or do you have help with 10 that? 11 A I have help with that. 12 Q Who helps you write your medical summaries? 13 A Most of this was done by Dr. Zwass, who is a 14 doctor that works for me, that abstracts medical 15 records. 16 Q Can you spell his name? 17 A Her. It is a woman. Marilyn Z-W-A-S-S, Zwass. 18 Q And does she have a separate billing rate? 19 A Yes. 20 Q And what is that rate? 21 A I don't recall. 22 Q Who else in your office helps you with 23 assembling -- summarizing medical records or writing 24 text that later becomes part of your report? 25 A Well, sometimes Dr. Schmitt. Sometimes other</p> <p style="text-align: right;">1123</p>
<p>1 strain on her heart*?" 2 A Correct. 3 Q Now, obviously, Shamika was an adult by the 4 time she gave birth; right? 5 A Yes. 6 Q So the heart defect is not a birth defect; is 7 that right? 8 A Don't know. I don't know if we know the answer 9 to that. 10 Q Do you know if Shamika has had any follow-up 11 care to determine whether or not she has a damaged 12 heart? 13 A I don't know. 14 Q But Shamika, at least to our knowledge, has 15 never had a heart transplant; correct? 16 A Correct. 17 Q Now, looking again at Page 7, the question is. 18 "Have you ever had a child who was 19 considered 'slow' in school?" and the 20 answer is "yes." 21 Do you know which of Kay Hobbs' children that 22 answer refers to? 23 A Again, I think we have data on Deandre. 24 Deandre clearly had problems. I don't know if her other 25 children were also slow in school. I don't have a lot</p> <p style="text-align: right;">1122</p>	<p>1 doctors, but almost all of the medical record reviews 2 are done by Dr. Zwass, which is one of her specialties. 3 Q What is Dr. Schmitt's first name? 4 A Reynold, R-E-Y-N-O-L-D. 5 Q Does Dr. Reynold Schmitt have a separate 6 billing rate? 7 A Yes. 8 Q Do you know what that is offhand? 9 A No, I don't. 10 Q Anyone else? We got Dr. Zwass and Dr. Schmitt. 11 A No. 12 Q In earlier sessions of your deposition, you 13 told me that Harpreet Takhar is someone who works in 14 your office and helps you with data analysis; right? 15 A Yes. He has a master's in epidemiology. 16 Q Do you bill separately for Mr. Takhar? 17 A Yes. 18 Q And Pam Anderson was another person who we have 19 identified working in your office. What is Pam 20 Anderson's professional back ground? 21 A She has a Ph.D. in epidemiology. 22 Q And does she help you with data analysis or 23 analysis and facts for the purpose of your reports? 24 A Yes. 25 Q Does she have a separate rate?</p> <p style="text-align: right;">1124</p>

<p>1 A Yes.</p> <p>2 Q Do you know what that is?</p> <p>3 A No.</p> <p>4 Q I know we talked about this before and forgive</p> <p>5 me for repeating, but benign breast disease -- a history</p> <p>6 of benign breast disease has been identified as a risk</p> <p>7 factor for developing breast cancer?</p> <p>8 A That is correct.</p> <p>9 Q Has a family history of benign breast disease</p> <p>10 been identified as a risk factor for breast cancer?</p> <p>11 A I believe we have one reference to that. That</p> <p>12 if you have a family history of benign breast disease,</p> <p>13 there is an increased risk of breast cancer. I think</p> <p>14 there is only one study that makes that point.</p> <p>15 Q Kay Hobbs died at age 43 from breast cancer; is</p> <p>16 that right?</p> <p>17 A I think so. She died in '99. She was born in</p> <p>18 '56.</p> <p>19 Q January --</p> <p>20 A January 2000. She just died. She was born in</p> <p>21 '56, so it would be 43.</p> <p>22 Q Is it your opinion that Kay Hobbs died at an</p> <p>23 early age from breast cancer?</p> <p>24 A Yes.</p> <p>25 Q Do you have an opinion with respect to whether</p> <p style="text-align: right;">1125</p>	<p>1 damage the breast tissue that ultimately gives rise to</p> <p>2 cancer in the breast is to have exposure during puberty,</p> <p>3 which she did have. So I don't think you have to invoke</p> <p>4 a genetic predisposition.</p> <p>5 We know that genetic factors would increase the</p> <p>6 risk, but she doesn't have any family history other than</p> <p>7 her sister. It is not like her aunts and her mother and</p> <p>8 these other people all had these breast cancer problems</p> <p>9 or any cancer of any kind.</p> <p>10 So, I mean, I don't see any reason to invoke a</p> <p>11 particularly high susceptibility. She just had a very,</p> <p>12 very high exposure. Now, in addition, to that she may</p> <p>13 well have had increased susceptibility. We will just</p> <p>14 never know.</p> <p>15 Q We talked extensively about the literature</p> <p>16 relating to breast cancer and PAHs and dioxins and all</p> <p>17 of that over the last several days. We talked about</p> <p>18 that in the context of Sherrie Barnes.</p> <p>19 Does that literature apply equally in your view</p> <p>20 to your opinions in Kay Hobbs?</p> <p>21 A Yes.</p> <p>22 Q Is there anything in particular in the</p> <p>23 literature do you think is more relevant to Kay Hobbs as</p> <p>24 opposed to Sherrie Barnes?</p> <p>25 A No, I don't. All of the points that we made</p> <p style="text-align: right;">1127</p>
<p>1 Kay Hobbs had any particular genetic polymorphism that</p> <p>2 would have predisposed her in developing DNA adducts</p> <p>3 and, therefore, developing breast cancer?</p> <p>4 A Well, I think that -- let's put it this way.</p> <p>5 If she did have one of those genetic tendencies</p> <p>6 to increase her risk, it would not be surprising. I</p> <p>7 think the point we need to emphasize with her is that</p> <p>8 she was exposed from birth in utero and during early</p> <p>9 childhood and during her puberty. So she was exposed</p> <p>10 during all of the critical windows. She was exposed in</p> <p>11 high amounts.</p> <p>12 It does not say so here, but I have been told</p> <p>13 she, like Sherrie Barnes, played on the wood, played on</p> <p>14 the dirt that was contaminated. She was exposed to, you</p> <p>15 know, what I would consider to be a very high amount</p> <p>16 although we cannot quantify it because we cannot</p> <p>17 quantify the amount that she obtained from -- let's say,</p> <p>18 playing on the wood or breathing the vapors, and</p> <p>19 touching the wood; and getting it on her skin; and</p> <p>20 getting it on her clothing; and playing in the ditches</p> <p>21 and in the yards.</p> <p>22 I think it is fair to say that her exposure</p> <p>23 would have been extremely high during times of great</p> <p>24 vulnerability, as we talked.</p> <p>25 I mean, one of the times you are more prone to</p> <p style="text-align: right;">1126</p>	<p>1 about the causation for cancer -- breast cancer in</p> <p>2 particular would apply to her.</p> <p>3 Q You said that she was exposed in utero?</p> <p>4 A It is my understanding that she was born in</p> <p>5 1956 and that her mother lived at 213 Carver Circle</p> <p>6 while she was pregnant.</p> <p>7 Q And now, Dr. Sawyer has done exposure</p> <p>8 calculations or dose calculations for plaintiffs in this</p> <p>9 case including Kay Hobbs.</p> <p>10 Do you have any independent information</p> <p>11 regarding Kay Hobbs' dose of creosote,</p> <p>12 pentachlorophenol, or any other exposure other than what</p> <p>13 Dr. Sawyer has done?</p> <p>14 A Well, I already indicated that Dr. Sawyer</p> <p>15 couldn't quantify a lot of the exposures that I think</p> <p>16 are highly significant.</p> <p>17 Q Okay. You testified earlier that Sherrie</p> <p>18 Barnes had a -- I'm sorry -- that Kay Hobbs had a high</p> <p>19 rate of exposure. I think that fairly characterizes</p> <p>20 what you said?</p> <p>21 A Yes, I thought she had a very high exposure.</p> <p>22 Q That is a qualitative statement; right?</p> <p>23 A Yes, it is a qualitative statement, but I just</p> <p>24 described some of the issues that contributed to that</p> <p>25 opinion.</p> <p style="text-align: right;">1128</p>

<p>1 Q Sure. Do you have anyway to quantify Kay 2 Hobbs' exposure to creosote, pentachlorophenol, PAHs, 3 and dioxins, or any other toxins?</p> <p>4 A Only by inference and by modeling and you know, 5 what you know has been generated in terms of 6 quantitative data.</p> <p>7 There is, unfortunately, a lack of measurements 8 contemporaneous through the years. I mean, back in the 9 '50's, when she was a child, it is very possible that 10 there was heavy, heavy exposures that we cannot 11 quantify. All we can do really is characterize it 12 quantitatively.</p> <p>13 Q I think you mentioned modeling. You have not 14 done any modeling; right?</p> <p>15 A No, I didn't.</p> <p>16 Q So the other experts in the case have?</p> <p>17 A Yes, that's correct.</p> <p>18 Q The same question for Sherrie Barnes, you don't 19 have any quantitative information regarding Sherrie 20 Barnes' dose of creosote exposure, pentachlorophenol, 21 PAHs, dioxin exposure or any other toxic --</p> <p>22 A Except the modeling which would be appropriate 23 to her.</p> <p>24 Q But, again, you have not done that modeling; 25 right?</p> <p style="text-align: right;">1129</p>	<p>1 Q Are you familiar with the Team studies, 2 T-E-A-M?</p> <p>3 A Team studies seems to me is some type of a -- 4 an exposure assessment.</p> <p>5 Q Right. Those were a series of studies done in 6 the '70's and '80's and maybe later, that dealt with 7 sort of ambient exposures to various substances 8 including solvents and benzene.</p> <p>9 Are you familiar with those studies?</p> <p>10 A Yes.</p> <p>11 Q Do you know where Kay Hobbs' or Sherrie Barnes' 12 exposure would have ranked in terms of what was measured 13 in the Team studies? Meaning, were they higher or lower 14 than general ambient background levels?</p> <p>15 A Well, what I have indicated, I think, before 16 the break was, that it is likely that the benzene levels 17 were higher than background. I don't think there is any 18 doubt that the naphthalene, PAH, dioxin, and penta 19 levels were higher than background; but whether or not 20 benzene was estimated or any measurements were taken of 21 benzene outside the property, at this point, I don't 22 know of any data on that point.</p> <p>23 I think that Dr. Sharma has done some estimates 24 about benzene. I have to look at his report to see. I 25 do believe he has given some estimates about what would</p> <p style="text-align: right;">1131</p>
<p>1 A Correct.</p> <p>2 THE WITNESS: Can we take a break?</p> <p>3 MR. HOPP: Yes. Let's take five.</p> <p>4 (Brief Recess.)</p> <p>5 BY MR. HOPP:</p> <p>6 Q Dr. Dahlgren, we talked earlier about breast 7 cancer and benzene. Are you aware of any studies that 8 identify a duration -- a dose in duration of benzene 9 exposure that is necessary to cause breast cancer?</p> <p>10 A I am not aware of any data on that point.</p> <p>11 Q Are you aware of any regulatory agencies that 12 have concluded that benzene --</p> <p>13 (Telephonic interruption.)</p> <p>14 BY MR. HOPP:</p> <p>15 Q Are you aware of any regulatory agencies that 16 have concluded that benzene is a cause of breast cancer 17 in humans?</p> <p>18 A No. Regulatory agencies don't usually name 19 specific cancers. What they do is they say -- they 20 determine whether or not the chemical or agent is 21 capable of causing cancer in the human being and then 22 they have rankings about ones that are, quote, proven 23 human carcinogens, agents or chemicals which are 24 probable and possible. Those are the rankings and they 25 don't discuss specific organ systems.</p> <p style="text-align: right;">1130</p>	<p>1 be present in some of the homes of benzene levels in the 2 air; but I don't recall from memory what those were.</p> <p>3 But it would be my impression that 4 qualitatively the levels of exposure to benzene would be 5 higher than background.</p> <p>6 Q And I understand that qualitative opinion and I 7 understand the basis for it, but you don't have any 8 quantitative data which indicates how much higher or 9 whether it was a higher level of exposure compared to 10 background?</p> <p>11 A That's correct.</p> <p>12 Q What is the source of benzene exposure from the 13 Koppers plant?</p> <p>14 A It is a natural constituent of creosote.</p> <p>15 Q Do you know what percentage in a typical 16 creosote sample, if there is such a thing, a range of 17 creosote samples what percentage is in benzene?</p> <p>18 A Well, it ranges, you know. As I recall, in the 19 liquid, it is fairly low. Maybe -- I don't know -- .1 20 percent .2 to 3 percent of liquid.</p> <p>21 In the vapor, I believe, because it is much 22 more volatile than many of the other components, that it 23 is present in maybe 10 times that level, 1 to 2 percent, 24 3 percent of the vapor is benzene.</p> <p>25 Q Have there been studies that have examined the</p> <p style="text-align: right;">1132</p>

1 levels of benzene normally found in human breath?
2 A Yes.
3 Q We exhale benzene?
4 A Well, it is a contaminate, unfortunately, of
5 our entire urban environment. It is in gasoline in the
6 rate of 2 percent of gasoline now is benzene by weight
7 and higher amounts in the gasoline vapor for the same
8 reasons that I have just stated.
9 So when we live next to automobiles, there is
10 benzene that arises from that source. And thus, all of
11 us have benzene in our bodies and therefore, in our
12 breath.
13 Q Do you have an opinion regarding the mechanism
14 by which benzene causes breast cancer or could cause
15 breast cancer?
16 A Well, benzene forms adducts. And it is a
17 mutagen. It is an alkylating agent. It does create the
18 same types of disruption of DNA as we talked about with
19 PAHs.
20 In fact, benzene is sometimes referred to as a
21 radiomimetic agent. It has the same effect as radiation
22 on cells.
23 Benzene also probably disrupts lipid membranes
24 in the cell wall. And thus, would add a stress to the
25 cell from that mechanism, but the main one that is

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1 focused on is its ability to denature or damage DNA.
2 Q Do you believe that benzene is an
3 immunosuppressant?
4 A Yes.
5 Q Is that the same thing as damaging DNA?
6 A No. The mechanisms of immunosuppression
7 probably has to do with this cell wall damage that by
8 disrupting the lipopolysaccharides in the cell wall, it
9 alters the function of the cell lipocyte such that it
10 doesn't process the antigens properly.
11 The mechanism of immunosuppression is not well
12 understood. It has not been studied in any detail. But
13 suffice it to say, that the animal studies and limited
14 human studies clearly show that a benzene does interfere
15 with normal immune function. Making one more
16 susceptible to infection and cancer as well as a result
17 of immune system inhibition and disruption.
18 And interestingly enough, I think it is
19 important that we also comment on the fact that
20 pentachlorophenol is another chemical that has been
21 shown to effect the immune system adversely.
22 So you have two chemicals here that are quite
23 well-known to effect the immune system.
24 So Kay Hobbs and the others have been exposed
25 to just a whole toxic soup, if you will, of chemicals

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1 with adverse effects that causes cancer, immune system
2 dysfunction, neurologic dysfunction; and I think it is
3 really kind of amazing that people were able to survive
4 as long as they did. And as many a people surviving in
5 that community as they have is really quite remarkable,
6 given the onslaught of the exposures they've had.
7 Q Did you bring your billing records for this
8 case with you today?
9 A Well, I didn't bring anything on paper except
10 the records of Sherrie Barnes and Kay Hobbs. I think I
11 have -- I don't know if it is on my CD or not. I have
12 to look and see. My staff said they put everything on
13 the CD that was requested.
14 Q Okay. If that is on the CD, can you produce it
15 after the deposition? I do not want to take the time
16 right now, but if it is there, I would like copies of
17 it.
18 A Okay.
19 Q Do you know how much you billed Lundy and Davis
20 to date for your work on the Grenada creosote
21 litigation?
22 A No, I don't.
23 Q Prior to this case, the Grenada creosote
24 litigation, you worked for the Lundy and Davis firm in
25 the Columbus, Mississippi creosote litigation?

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1 A That's correct, yes.
2 Q And you worked with them in the Arkansas
3 chicken litter litigation; is that right?
4 A Yes, sir.
5 Q And are you currently working with the Lundy
6 and Davis firm other than the Arkansas chicken litter
7 litigation and this Grenada creosote litigation?
8 A I don't recall.
9 Q Are they currently handling cases involving
10 Kerr McGee plants in Pennsylvania and other places?
11 A No. That Pennsylvania case settled along with
12 the Columbus, Mississippi case. And they are not
13 pursuing any cases against Kerr McGee.
14 Q Do you know how much you have been paid by
15 Lundy and Davis in the last ten years?
16 A No.
17 Q Do you know how much you have been paid by
18 Lundy and Davis over the last five years?
19 A No.
20 Q Do you know how much you have been paid by
21 Lundy and Davis in the last year?
22 A No.
23 Q Other than this case; that is, the Grenada
24 creosote litigation, what other creosote cases are you
25 currently working on?

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<p>1 A A case in Sutton, West Virginia involving a 2 creosote plant there. I think that is the only one that 3 comes to mind. There was one other I was working on but 4 it settled a few months ago.</p> <p>5 Q Was that the Jerome, Florida litigation?</p> <p>6 A Jerome, Florida.</p> <p>7 Q Are you currently involved in any litigation in 8 De Soto County, Florida?</p> <p>9 A I don't know where De Soto County is.</p> <p>10 Q There is a newspaper that either cited your 11 work or quoted you regarding a wood treating plant 12 somewhere in the Pacific Northwest, either Washington or 13 Oregon. Are you currently working on any creosote cases 14 in Washington or Oregon?</p> <p>15 A No. That quote in the newspaper came from a 16 woman who called me one day after she read my paper in 17 Environmental Research. And she asked me if I thought 18 it would be potentially hazardous to live next to a wood 19 treatment plant, and I said, "Yes." And I think she 20 then quoted me in talking to the newspaper people.</p> <p>21 Q Now, you were involved in the Crystal Springs 22 litigation; is that right?</p> <p>23 A Yes, Crystal Springs, PCB case, I was involved 24 in that.</p> <p>25 Q Is that case currently still pending?</p> <p style="text-align: right;">1137</p>	<p>1 specifically one on Sherrie Barnes. It may have been 2 included in that. I would have to double-check. I 3 got -- that is definitely on my DVD.</p> <p>4 Q Do you have any specific comments or criticisms 5 regarding Dr. Guzelian's opinions?</p> <p>6 A Well, I have to go through the report line by 7 line. I think I would certainly have to disagree with 8 his conclusion that, A, the people in this case had not 9 had significant exposure to harmful agents from creosote 10 and pentachlorophenol and dioxin and PAHs. And I think 11 his opinion is that these people have not sustained any 12 harmful exposures. I would have to disagree with that.</p> <p>13 He further disputes whether or not there is 14 sufficient evidence to support the notion that these 15 people have elevated exposures to dioxin and PAHs based 16 on the biological monitoring tests that I've performed. 17 I have to disagree with him about that.</p> <p>18 I have to say, I just have to disagree with him 19 on about everything that he said because I think he 20 misquoted the papers, the research papers. I don't 21 think he accurately reflected the literature in terms of 22 the health effects attributable to these compounds.</p> <p>23 And in particular, he takes issue with the 24 evidence that there is a link between PAHs and dioxin 25 and breast cancer. I think he is just dead wrong about</p> <p style="text-align: right;">1139</p>
<p>1 A It has been resolved.</p> <p>2 Q In the Jerome, Florida litigation, did you give 3 any opinions about the potential for creosote exposure 4 to cause breast cancer?</p> <p>5 A You know, I think there were some breast cancer 6 cases in that litigation. I'm pretty sure there were a 7 couple.</p> <p>8 Q How about in Sutton, West Virginia? Have you 9 given any opinions on creosote or pentachlorophenol?</p> <p>10 A No, it hasn't reached that stage. We are still 11 talking about the -- I think what they -- what that case 12 is about is about medical monitoring and it does not 13 involve any personal injuries.</p> <p>14 Q In Sutton, West Virginia, have you done any 15 biological testing for exposure to creosote or 16 pentachlorophenol?</p> <p>17 A No, I have not done any testing at all. I just 18 reviewed some of the data and environmental testing that 19 has been done. The case keeps being delayed by various 20 legal factors.</p> <p>21 Q In this case, in the Grenada creosote 22 litigation, have you reviewed Dr. Guzelian's expert 23 report on Sherrie Barnes?</p> <p>24 A Well, I saw his overall expert report where he 25 offered his rebuttals to my report and I don't recall</p> <p style="text-align: right;">1138</p>	<p>1 his interpretation on the literature on that.</p> <p>2 I suppose I could go on, but, you know, I don't 3 think there is much in his report that I would say I 4 agree with except for maybe the date.</p> <p>5 Q All right. Let's talk about Dr. Wong's paper 6 in this case. Dr. Wong's paper generally about creosote 7 health effects.</p> <p>8 A Yes.</p> <p>9 Q Do you have any specific comments or criticisms 10 about Dr. Wong's opinions?</p> <p>11 A Yes. I think his study of the workers in the 12 Koppers' facilities does show evidence of health 13 effects. In spite of the fact that his study design was 14 faulty, that he included people with one day of working 15 in the plant, which I don't think would be appropriate.</p> <p>16 Most of his workers have less than 20 years of 17 latency. He only got 15 percent of the people who had 18 proper latency. So he had a young workforce. The 19 average age, I think, was maybe mid 40's.</p> <p>20 There is no way that you could -- there is no 21 way -- the point is that he could have looked back. 22 What he did was, he picked a date. I think he picked -- 23 what was it? -- '79. So he only looked at workers that 24 had been hired from '79 forward. He could have gone 25 back because, obviously, Tabershaw in his earlier study</p> <p style="text-align: right;">1140</p>

<p>1 had data on workers that went back into the '40's. And 2 he would have been much better off to include those 3 longer-term workers. So he would have had older workers 4 and people with proper latency. 5 But in spite of those deficits, he showed an 6 increase of lung cancer in those that had proper 7 latency. And he showed an increase in multiple myeloma, 8 which has been reported in other creosote worker 9 studies. 10 So, anyway, I think his study isn't -- isn't 11 really designed to answer the question he asked, which 12 is, is there an increased risk of cancer in the creosote 13 workers? 14 At least not optimally designed. And in spite 15 of that, he showed some positive effects which he then 16 tries to explain away by doing a nested case control, 17 where he uses other people who died as his controls. 18 And you know, you don't do that. 19 What you would do is you would compare them to 20 the whole cohort, not just a deceased cohort. So he 21 made a technical error in the way he did his nested case 22 control. 23 And I might also point out that a lot of the 24 cancers that we are interested in do not result in 25 death. They result in cancer which requires extensive</p> <p style="text-align: right;">1141</p>	<p>1 And an example would be that he put the guys 2 that were unloading the ties in the drying area -- I 3 think they call them loaders -- in the low exposure 4 group. 5 The Creosote Council study showed that those 6 people have high exposure. So he misclassified the 7 exposures, which would tend to mess up his data 8 analysis. 9 And you know, I have grown skeptical of studies 10 where, you know, with this type of design so -- I guess, 11 that is all I have to say about Dr. Wong's study at this 12 time. 13 Q Have you reviewed Dr. Cole's report? 14 A Yes. 15 Q Do you have any comments or criticisms 16 regarding Dr. Cole's report? 17 A Yes. His main purpose was to criticize my 18 study, and I think some of his criticisms were really 19 kind of petty. Like he thought there were some errors 20 in the text of some of the figures and tables, but his 21 essential point is that the way that we did the study, 22 the 1242 people that we did the questionnaire on which 23 we based most of our conclusions, he said that they were 24 not representative of the community. Well, that is not 25 true.</p> <p style="text-align: right;">1143</p>
<p>1 treatment and the person may live for many years. He 2 did not do a morbidity study. He did a mortality study. 3 And I think I've indicated earlier that 4 mortality studies tend to miss a lot of things, 5 particularly if you got a young cohort like this because 6 a lot of these men would have had a likelihood of 7 developing cancer but still be treating and not dead 8 yet. 9 So, I mean, I can go on, but there are other 10 criticisms that I can make of the study, but overall I 11 think it is the kind of study that Dr. Wong frequently 12 does where he, you know, includes people with no 13 exposure. 14 I went through the records that were sent and I 15 found several people who worked in the plant for one or 16 two days that were included in his study. Now, why 17 would you do that? Unless you were trying to delude the 18 effect. 19 He also studied people that worked in the 20 office. You know, admittedly, they may have had some 21 exposure by being in the office, but his exposure 22 assessment -- in other words, his surrogate for dose put 23 some people in the category of high exposure, who may 24 have had high exposure; but he clearly put some people 25 in the lower exposure category, who had high exposure.</p> <p style="text-align: right;">1142</p>	<p>1 They were very representative of the community. 2 And his argument that patients who come forward in a 3 lawsuit are by definition going to have more illness 4 than the general population. There is no shred of 5 evidence to support that notion. I mean, there is not a 6 single published study that supports that notion. 7 And the one published study that did examine 8 that question; namely, were people that volunteered to 9 be plaintiffs in a lawsuit significantly different than 10 people who did not come forward in a lawsuit but had 11 similar exposures, that was the Allred and Burg study 12 which I quoted, he claimed in his paper that that paper 13 did not say what I said it said. Well, I will let the 14 paper speak for itself, but I think for him to say that 15 is just plain wrong. 16 He writes in his report that the Allred and 17 Burg study just shows no such thing, period, which he 18 doesn't say what it does say. He does not discuss the 19 paper and say, oh, that Dr. Dahlgren says X, but really 20 Y is true. 21 Anyway, I think Dr. Cole is -- you know, he is 22 certainly entitled to his opinion, but the paper was 23 published in the most prestigious environmental journal, 24 and it was reviewed by peers, who are qualified 25 epidemiologists and toxicologists and environmental</p> <p style="text-align: right;">1144</p>

1 occupational medicine experts.
2 And if Dr. Cole disagrees, he is disagreeing
3 not only with me, but my fellow authors, and also the
4 reviewers and the editor of the journal, who all felt
5 that the paper had a great deal of merit and a great
6 deal of value; in spite of the fact that it was, as I
7 admitted and made quite clear, a study done on a group
8 of people that were involved in litigation.
9 It would appear that Dr. Cole is of the opinion
10 that you can't publish data if it is obtained in the
11 process of litigation, which I think is completely
12 incorrect.
13 There is lots and lots of publications over the
14 years that involved people involved in litigation.
15 Those two things by no means disqualify the data that
16 was generated from looking at these groups of people.
17 Q Okay. Going back to your Columbus, Mississippi
18 paper, and this is the one -- I think this is the one we
19 talked about off the record and I did not bring a copy
20 of it with me.
21 And what I would like to do, if it is all right
22 with you, Keith, is I do have a copy of it. It is a
23 published paper in Environmental Research. I will print
24 a copy and mark it as deposition Exhibit No. 26 and send
25 it to the court reporter, so we can include it.

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1 MR. PRUDOMME: Okay. No objection.
2 THE WITNESS: Should I put it up on my machine?
3 MR. HOPP: If you would, that might be helpful.
4 Q Deposition Exhibit 226 will be your paper
5 entitled Health Effects on Nearby Residents of a Wood
6 Treatment Plant, published in Environmental Research,
7 and the date is 2003.
8 (Defendants' Exhibit 226 was marked
9 for identification by the court
10 reporter.)
11 BY MR. HOPP:
12 Q Now, just as a preliminary question,
13 Dr. Dahlgren, do you intend to rely on this paper,
14 deposition Exhibit 226, for the purpose of your opinions
15 with respect to Sherrie Barnes and/or --
16 MR. PRUDOMME: Kay Hobbs.
17 BY MR. HOPP:
18 Q -- Kay Hobbs?
19 A Yes.
20 Q Does your Health Effects paper address
21 increased risk of breast cancer?
22 A No.
23 Q So in what way do you believe your Health
24 Effects paper is related to your opinions regarding
25 Sherrie Barnes or Kay Hobbs?

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1 A Well, it shows an increased risk of cancer as
2 Dr. Cole put it in a health emergency-type excess of
3 breast cancer -- of overall cancer.
4 We don't do a separate analysis of the
5 different types of cancer; mainly, because they are
6 relatively small numbers. The number of cancers we had
7 overall were -- let's see, where is it? We had 126
8 people reporting cancers. That is a relatively small
9 number to start doing specific cancer prevalence on.
10 I don't recall from memory how many breast
11 cancers there were in this population or how many would
12 have been predicted. I just don't have that memorized,
13 but I think the finding of the excess cancer prevalence
14 in this population is significant for the Sherrie Barnes
15 and Kay Hobbs cases.
16 Q Now, let me show you what we previously marked
17 as deposition Exhibit No. 7. Deposition Exhibit 7 is an
18 earlier version of the same paper, is that right, the
19 Health Effects on Nearby Residents of a Wood Treatment
20 Plant?
21 A Yeah, I guess, it is. I don't see Harpreet's
22 name on this. This must have been an earlier draft.
23 Q Now, the version we see identified as
24 deposition Exhibit 7, is that the version that was
25 submitted to the journal Environmental Medicine?

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1 A I don't recall.
2 Q Let me hand you what we are -- what we have
3 marked as deposition Exhibit 227. This is a letter to
4 you from Dr. Anne Cockcroft, the editor of the journal
5 Environmental Medicine.
6 (Defendants' Exhibit 227 was marked
7 for identification by the court
8 reporter.)
9 BY MR. HOPP:
10 Q Are you familiar with this letter?
11 A Well, I don't remember it independently, no.
12 Q Do you remember that your Health Effects paper,
13 an earlier version of it, was submitted to Environmental
14 Medicine and the Environmental Medicine declined the
15 paper?
16 A Obviously, that is what the letter says.
17 Q And that is what is reflected in deposition
18 Exhibit 227?
19 A Correct.
20 Q And did you then after March, 2001 make
21 revisions to the Health Effects paper before you
22 submitted it to environmental research?
23 A What was the question again?
24 Q After you received the letter, deposition
25 Exhibit 227, in March of 2001, did you make revisions or

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<p>1 change the paper at all before you submitted it to 2 Environmental Research, which is the journal that 3 eventually published it? 4 A Did we make revisions? 5 Q Yes. 6 A Yes, many revisions. Sure. 7 Q Can you tell me generally what sort of 8 revisions you made before you submitted the paper? 9 A We have to go through the paper line by line. 10 It is, essentially, the same, but it has got a number of 11 changes. Probably the most important thing was we 12 submitted a companion paper which outlined a great deal 13 more information about the exposure side of things. 14 Q Okay. So the other paper is called Exposure 15 Assessment? 16 A That's right. 17 Q And I know we previously marked it as an 18 exhibit. It is your testimony then that you did not 19 submit the Exposure Assessment paper to the journal of 20 Environmental Medicine? 21 A Correct. One of the things that they were 22 upset about in the original paper submission is that we 23 did not discuss exposure enough and defined exposure, so 24 that they can understand what exposure meant. 25 We just said, oh, exposure is assumed. They</p> <p style="text-align: right;">1149</p>	<p>1 reviewers were? 2 A No. 3 Q That is not unusual; right? You get reviewers' 4 comments and you are blinded, if you will, to the 5 identity of the reviewer? 6 A That's correct. You don't know who it is. 7 Q The first comment is "Internal 8 Validity of the study, insufficient 9 info, reached choice of exposed and 10 unexposed cohort." 11 Did you address that comment with your Exposure 12 Assessment paper? 13 A Yes, we tried to give more of a description of 14 the choice of these two groups. 15 Q Next comment says, "Serious selection 16 Bias if exposed cohort selected 17 because complaining of health 18 problems." 19 Do you agree with that comment? 20 A I think that would be probably reasonable if 21 that was the basis for the selection. Otherwise, we 22 only had people who come forward that were sick. 23 Q And is it your testimony that that was not 24 among your selection criteria? 25 A Correct. The criteria was the exposure, and we</p> <p style="text-align: right;">1151</p>
<p>1 lived next to a wood treatment plant. They wanted us to 2 try to give as much information about the exposure as 3 possible. 4 As I said, in the first paper is "nearby 5 residents" of the plant. We did not go into any detail. 6 Obviously, I think it made it a much, much better paper 7 to have all of that information about exposure. 8 Q And the Exposure Assessment paper was actually 9 published in the same volume of Environmental Research; 10 is that right? 11 A That's correct. 12 Q So they were kind of companion papers? 13 A They were companion papers. 14 Q Let's look at the Reviewers' Comments. This is 15 Exhibit 227, second page. First of all, this is the top 16 right-hand corner, it says, Reviewer 1, 2, and 3. And 17 we got comments from Reviewers' 1 and 2 attached. 18 Do you remember was there a third reviewer? 19 A Not to my knowledge. 20 Q And I don't know enough about how they do this. 21 What does "stat" mean on this document? 22 A I don't know. That is something internal of 23 that journal. 24 Q Look at the Reviewer Comments. This is 25 Reviewer No. 1. Do you know, first of all, who these</p> <p style="text-align: right;">1150</p>	<p>1 tried to limit this first 1200 and -- whatever it was, 2 1200-some-odd -- 1269, who were nearby residents, and 3 there were people only living on the streets closest to 4 the plant were included. 5 And there was no -- there was no attempt made 6 to look at -- for symptoms or for health problems. 7 Everybody who lived there was invited to participate. 8 Q And did -- let's back up. I'm not sure which 9 paper this is reflected in -- which of your papers. 10 When -- sorry. Either repeat or explain that a 11 little bit, if you don't mind. 12 The exposed cohort for your Health Effects 13 paper, which are people who lived on certain streets in 14 the vicinity of the Columbus, Mississippi creosote 15 plant; is that right? 16 A Yes. The limit was that they could not live 17 more than a mile away, but most of them lived much 18 closer than that. For example, there was a set of homes 19 right next to the plant and there was a set of homes 20 next to a creek -- not a creek, but a runoff ditch which 21 frequently overflowed and that we measured and had high 22 concentrations of the chemical. 23 So people living along that ditch. People 24 living on the immediate surrounding streets were the 25 people that were chosen.</p> <p style="text-align: right;">1152</p>

1 Q And did you -- strike that.
2 Were all of the people who lived in the area
3 that was covered by the study plaintiffs in the lawsuit
4 against Kerr-McGee at the time the study was initiated?
5 A They were probably -- if they weren't, they
6 were potential plaintiffs. In other words, they were --
7 I didn't record whether they were active plaintiffs at
8 the time or not; but I think many of them did sign up to
9 become plaintiffs. And so they were all eligible.
10 Q At the time that the study was initiated and
11 you selected your exposed -- your area of exposed
12 population, this area of certain blocks, did you look
13 for people who had lived there previously or was your
14 study designed to look at people who lived there at the
15 time that you initiated the study?
16 A It was people almost -- almost everyone of them
17 still lived there and had lived there for at least five
18 years.
19 Q Living there for five years was another one of
20 the selection criteria?
21 A Yes. I don't recall if we had a few children
22 that might have lived there less than that because of
23 their age.
24 I'm pretty sure the average duration of
25 residents was about 12 years, as I recall. But all of

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1 them had lived there for a significant length. Most of
2 them had lived there for a long time.
3 Q Is it accurate to call your health effects
4 paper a cross-sectional examination of the people who
5 lived in that study area at that time?
6 A Yes, it was a cross-sectional study. There
7 were people, at a given point in time, who were looked
8 at. That is called a cross-sectional study, as opposed
9 to a cohort study where you identify people and then
10 follow them for a time.
11 Q So this was, essentially, a snapshot of these
12 people at the time the study was done?
13 A Yes.
14 Q What was your participation rate after you had
15 selected the blocks, you know, the geographic area of
16 where your study was going to -- that your study was
17 going to address?
18 A Well, we didn't have an exact count of how many
19 people were in those blocks, but it -- using, I think,
20 three residents per home as an estimate, I think the
21 total number of people that would have been, you know,
22 in those blocks and in that relatively confined area was
23 no more than about 2,000. So we got 1241 or whatever it
24 was of those folks.
25 Q So 70 percent or so?

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1 A Something in the 70 percent range, that's
2 right.
3 Q What you just gave me is an estimate of three
4 people per home. Did you -- did you look at census data
5 or phone books or some other way to actually quantify
6 how many people did live in the study area, or was your
7 prior answer based on that study?
8 A In order to do that, we would have had to be
9 selecting people from a census tract where they actually
10 count the number of people in a given census tract or
11 maybe a zip code.
12 And then we would have to extend the area of
13 people that we were studying because those areas would
14 be quite a bit larger than the group we looked at.
15 Census tract has a much larger population.
16 Q Census tracts don't coincide with the cohort
17 study area that you were interested in?
18 A Right.
19 Q How then did -- once you identified the study
20 area, how did you go about contacting the people who
21 lived in those homes to see whether they were interested
22 in participating in the study?
23 A There were notices put up in the neighborhood.
24 Most of the people learned about it from their church,
25 wherever they went on Sunday morning, and the pastors of

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1 several of the churches in the area announced the legal
2 case.
3 In fact, they even had some of the lawyers come
4 to the church services and explain what they were doing
5 and inform people that way.
6 Q Now, this happened in Columbus, Mississippi.
7 Lawyers went to church services and told people what was
8 going on?
9 A Yes.
10 Q Were you present at any of these presentations?
11 Do you know what was said to these people?
12 A No, I don't.
13 Q Did you review any sort of script or any sort
14 of statement regarding the study and inclusion criteria
15 or exclusion criterias that was going to be given at the
16 church service?
17 In other words, did you help these lawyers
18 figure out what to say to these people?
19 A No, I did not review the script or discuss what
20 they should say or not say. That wasn't my role.
21 Q And then was there a way of verifying -- strike
22 that.
23 So an announcement was made. Did the
24 announcement, to your knowledge, include the geographic
25 area of the study?

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<p>1 A Yes. People were limited if they came from far 2 away or they hadn't lived there for any length of time, 3 they were not included in the study, the questionnaire 4 study.</p> <p>5 Q All right. So then after the announcements 6 were made, presumably at a Sunday church service, was 7 there then a period of time where people came forward 8 and you or someone on your behalf interviewed them?</p> <p>9 A No. The questionnaire was done in groups of 10 about 40 or 50 people at the local church. It was a 11 Baptist church that was closest to the plant.</p> <p>12 And they would come in in groups of 50 -- 40 or 13 50, and they would be -- they sat down at tables. And 14 then we announced, you know, we had the proctors, 15 various people administering the questionnaire, announce 16 how to fill it out.</p> <p>17 They had a slide to put up. Here is how you 18 answer the question. Darken the circles. Do not put an 19 X because that is a problem. And they were told to fill 20 it out to the best of their knowledge.</p> <p>21 If they had questions, they would raise their 22 hands and the proctor would respond to the question 23 individually or if they thought it was appropriate to 24 the group as a whole.</p> <p>25 And then when they finished the questionnaire,</p> <p style="text-align: right;">1157</p>	<p>1 peer review for cross-sectional studies like this?</p> <p>2 A It is a standard technique, and it has been 3 used by myself and Mr. Warshaw on many, many other 4 occasions and Mr. Warshaw's studies, many of them have 5 been published in the peer-reviewed literature.</p> <p>6 I don't know that the issue of proctored 7 examinations is quote/unquote been subject to peer 8 review as to being the way to do things specifically or 9 not.</p> <p>10 I can tell you that the advantage of it is that 11 you can do -- it is almost as good as a one-to-one 12 administered questionnaire in terms of the results that 13 we get, as opposed to sending out a questionnaire in the 14 mail and expecting people to fill it out on their own, 15 where they will have maybe a family member fill it out 16 for them. They will misunderstand the questions and 17 have no one to ask. They will leave out things 18 inadvertently or on purpose because they don't know what 19 the answer is or they are not sure or they just missed 20 the question.</p> <p>21 Whereas doing it in this proctored way, you get 22 at least all of the questions answered and you know that 23 the person that put their name on the people is also the 24 one who filled out the questionnaire.</p> <p>25 Q Okay. That was my next question. Did you</p> <p style="text-align: right;">1159</p>
<p>1 they would bring it up to the proctors. The proctors 2 would go through it and make sure they answered all of 3 the questions as much as they could on a quick review 4 that those questions were -- made sense.</p> <p>5 For example, that if they started smoking 6 before they were born, they would, you know, question 7 them about that. That sort of thing. But, basically, 8 it was for completeness of the questionnaire.</p> <p>9 Q Now, who were the proctors?</p> <p>10 A Proctors are various people in my office and 11 also in Ray Warsaw's office, who had been trained to do 12 this, have done it many, many times in different 13 settings.</p> <p>14 It is a fairly straight forward activity, but 15 we try to be careful to provide a consistent 16 administration and instruction. So we are telling the 17 people each time we do it, we just say the same things 18 to people. So that there is not a -- any differences in 19 the way they are administered to both the exposed and 20 the controls.</p> <p>21 Q Has this method, the method that we have just 22 gone through; that is, the announcement in the 23 neighborhood or local churches followed by groups of 24 people coming in and being proctored through filling out 25 a questionnaire, has that method ever been subject for</p> <p style="text-align: right;">1158</p>	<p>1 check I.D.'s when people came in, to make sure that they 2 were who they said they were?</p> <p>3 A Yes, we actually did do that.</p> <p>4 Q Did you require proof of address to show that 5 they lived in your study area?</p> <p>6 A Yes. When they showed their I.D., they would 7 have an address on there. So it would be verified. The 8 attorneys were actually helpful in that regard because 9 they didn't want people who wouldn't qualify as 10 plaintiffs. So they actually were involved in that 11 process of screening of the people to make sure that 12 they were in the study area.</p> <p>13 Q Were there any other people who came in for the 14 study, who you ended up having to reject because they 15 lived outside of the study area or otherwise, did not 16 meet your selection criteria?</p> <p>17 A Yes, but I don't recall how many, but I know 18 there were some.</p> <p>19 Q And at any point, did you or anyone else that 20 you know go door to door on this neighborhood to see if 21 there were other people who met this criteria, but did 22 not show up to this proctor questionnaire?</p> <p>23 A No. Because the attorneys were reluctant to do 24 that because it would appear as though they were 25 soliciting. They wanted it to be entirely voluntary.</p> <p style="text-align: right;">1160</p>

1 Q So to the best of your recollection, the
2 selection criteria was a certain period of time living
3 in the neighborhood and a certain geographic area?
4 A That's correct.
5 Q Were any of the people in your study, the
6 cohort that is covered by your Health Effects paper
7 workers at the Columbus, Mississippi plant?
8 A No. I think -- I think there were some
9 ultimate plaintiffs who worked in the plant for a short
10 time, but I don't think -- I would have to go back and
11 look at the data. There might have been one or two.
12 Q Do you remember working at the plant as being
13 an exclusion criteria or it just worked out that way
14 that the people who worked in the plant did not show up
15 or they did not fall within the selection criteria?
16 A Well, as I said, I think there were one or two
17 people that worked there briefly. I think the current
18 workers did not want to apply because they felt they
19 would lose their jobs if they sued.
20 But I don't know if -- I know we have the data
21 in the database. We can look it up, but my recollection
22 is that there were one or two guys that worked there for
23 a short time.
24 Q Now, looking, again, this is Exhibit 227, the
25 second reviewer's comment.

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1 A You mean the first reviewer's?
2 Q I mean the first reviewer's comment, but the
3 second comment from the first reviewer.
4 The question is how were exposed cohorts
5 identified and how/why 1279 to 221 chosen and then the
6 question mark participation range.
7 At a certain point, you drilled down in your
8 cohort of over 1200 people, down to 221 people to do
9 some more extensive studies; is that right?
10 A That's right.
11 Q How did that operation work? How were those
12 221 people chosen?
13 A We sorted them by sex and age, and then
14 stratified them into groups. So we could pull out of
15 the larger population a subgroup that would be
16 representative of the whole group for further study. It
17 is explained in the paper in the method section.
18 Q Can you direct me to that? I would like to
19 know the inclusion criteria for the 221 people.
20 A Age and sex basis that was all from the
21 questionnaire and subjects.
22 Q And then were those people -- okay. Let me
23 back up. You got -- let's see. I am looking at
24 Materials and Methods.
25 A The right-hand column on that Page 2. It says,

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1 "The list of subjects who completed
2 the questionnaire were sorted by sex
3 and age based on upon questionnaire
4 responses. An age- and
5 sex-stratified sample of 240 subjects
6 was selected alphabetically by
7 calling subjects in the order in
8 which they were sorted until age and
9 sex cell was filled."
10 Q What do you mean by age and sex cell?
11 A We wanted to have a certain number of males,
12 certain age groups, a certain number of females, a
13 certain age groups. I think we divided them into
14 five-year age groups. So that we would be doing a
15 random analysis of the larger population.
16 Q So your age and sex cells had actually 240
17 slots for people?
18 A Yes.
19 Q Your stratification resulted in a sample size
20 of 240?
21 A Right.
22 Q And then 221 people showed up for examination?
23 A Right. 19 people who we asked to participate
24 did not.
25 Q And, again, I just want to understand the

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1 process. You took the 1200-some questionnaires and went
2 through them and sorted them into categories, and when
3 you filled your cells, then you stopped?
4 A Well, yeah, when all of the cells were filled,
5 we stopped calling people.
6 Q When you say "calling people," you actually got
7 on the phone and said you have been selected for further
8 study, please come in, and we want to look at you?
9 A Yes.
10 Q How was the number 240 generated? What was the
11 operation that you went through to come up with that
12 number of people in the cell?
13 A Dr. Thorton, our statistician, felt that we --
14 that would be a sufficient number to have a reasonable
15 likelihood of showing statistically significant
16 differences when compared with the control group. We
17 would have 120 men, 120 woman.
18 Q So, roughly, 20 percent of the population that
19 had filled out the questionnaires to begin with?
20 A Right. He, I believe, did a power analysis and
21 said look, if the difference in the populations are like
22 30 or 40 percent, this number should be sufficient to
23 detect a difference.
24 Q Okay. Going back to Exhibit 227, this is the
25 first reviewer's set of comments, comment No. 3. It

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<p>1 says, "Were interviewers/investigators 2 blinded to exposed/not status?" 3 What is your answer to that question? 4 A No. We had no way of doing that. In other 5 words, the exposed population was in one city and 6 unexposed in another. 7 Q In another city. 8 A In another city. So we were not able to blind 9 the examiners to the exposed or unexposed. 10 Q So if they knew if somebody was in Columbus, 11 Mississippi, he or she would have been exposed? 12 A Right. 13 Q And the unexposed population was from Selma, 14 Alabama? 15 A Right. 16 Q So if they knew they were from Selma, they were 17 unexposed? 18 A That's right. 19 Q Comment No. 6, Exhibit 227, second page, the 20 question is, Was the questionnaire used previously -- I 21 think it says -- piloted/validated/used before, or was 22 it newly developed for the study? 23 What is your response to that question? 24 A The questionnaire had been used extensively in 25 many prior studies.</p> <p style="text-align: right;">1165</p>	<p>1 significant even if statistically 2 significant." 3 How, if at all, did you address this comment? 4 A Well, the guy is wrong. He just doesn't know 5 enough about hematology, whoever wrote this. It was 6 probably an epidemiologist. 7 No. When you have a difference in a population 8 of .4 in MCHC and you have exposure to benzene, you 9 probably have a significant defect. 10 In fact, the next reviewer comments on that, if 11 I recall properly. He says we should have done more 12 hematological studies, but the red cell morphology was 13 something he wanted more information about. The 14 difference is slightly small, but statistically 15 significant difference in red indices. 16 It could have been by chance alone and not 17 significant, but in this case, given the fact that 18 benzene was one of the elements that they were exposed 19 to, it probably does have significance; but we did not 20 go into great detail about that. 21 I think we may not have even pursued it because 22 we had limited information about the MCHC. That was, I 23 think, in Table 9, and that wasn't the only abnormality 24 that was seen in the populations. 25 If you look at Table 9, we kept Table 9 as it</p> <p style="text-align: right;">1167</p>
<p>1 Q Comment No. 7, "Results tables need 2 To stand along and need more units." 3 Was that something that you addressed when you 4 resubmitted the paper? 5 A Yes. 6 Q How? 7 A Well, I don't recall, but I think we addressed 8 that to some degree. He didn't like our tables. And I 9 think the tables were changed when we -- let's look at 10 the demographic table. It is probably about the same. 11 Q What is your understanding of what this 12 reviewer meant when he said, "more units"? 13 A Well, in Table 4, it says, exposed 6.9. He 14 wants to know what that 6.9 meant. I believe that is 15 correct. 16 And we tried to address that, I think, in 17 Table 4 in the revised paper expelling of what the score 18 means at the bottom, and we did not do that in Table 4 19 of the first draft. 20 Q Let's look at comment No. 8. It says, 21 "Important to differentiate between 22 medical and statistical significance 23 of differences between hematological 24 values, e.g., the difference of 25 0.4 in MCHC is not medically</p> <p style="text-align: right;">1166</p>	<p>1 was because it -- what he said is just, you know, not 2 really correct. I mean, these differences are 3 significant. He quibbled about this one that the mean 4 corpuscular hemoglobin concentration MCHC was 31.1 in 5 the exposed and 31.5 in the controls. And he tried to 6 say that the .4 wouldn't matter. He ignored the others. 7 I don't know. Frankly, I think this particular 8 guy doesn't know much about hematology. 9 Q Let's move on to the second reviewer's 10 comments. I just want you to look at the last 11 paragraph. This is the last sentence, really 12 Says, "Therefore, it can be 13 flatly stated that there is a 14 dramatic and troublesome increase in 15 cancers among the exposed study 16 group." It says, "I suggest that 17 this statement be included in the 18 discussion." 19 Did you include that? 20 A I don't recall. I know Dr. Cole would have 21 certainly included it because he felt it was a public 22 health emergency. That it was so high, that we had to 23 be wrong, which is really kind of amazing. 24 Q Did you feel it was a dramatic and troublesome 25 increase in cancers in the exposed study group?</p> <p style="text-align: right;">1168</p>

1 A Well, I would agree with that. Yeah, I mean,
2 it is a five-fold increase in cancer which is dramatic.
3 Q And other than publishing your results and
4 giving them to the attorneys for the purpose of using it
5 in the litigation, did you take any further steps?
6 Did you meet with any public health agencies
7 or --
8 A I sent a copy of our paper to the Mississippi
9 Department of Public Health. So far I don't think they
10 have done anything about it.
11 But you do know, maybe you don't, but Kerr
12 McGee closed the plant right after this and sold all of
13 its other wood treatment plants. And I think that is
14 pretty -- you know, what was the health department going
15 to do? They closed the plant. What more could they do?
16 Well, what they should do if they were doing
17 their job is they should go to Grenada and follow up on
18 that; but I think the health department in Mississippi,
19 and frankly, in other states as well, doesn't ever do a
20 proactive business. I mean, you can call them up and
21 say, we have a cluster of cancers.
22 And I have done this in California repeatedly.
23 And Dr. Roy Notra, who is the Department of Health
24 epidemiologist, who is in charge of cancer clusters,
25 basically, told me that he doesn't believe in

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1 environmental causes of cancer. And he doesn't want to
2 follow any of them up and refuses to. He says it
3 doesn't happen.
4 Now, Dr. Notra, I believe, is incorrect. I
5 believe there are environmental factors in cancer and he
6 should follow them up as a public health official, but
7 he is the guy in charge of California.
8 I have not identified and/or had personal
9 conversations with the people in the health department
10 of Mississippi, but, I guess, I would make this general
11 comment that the public health departments across the
12 country don't seem to take much of the proactive stand
13 in these kind of cases for some reason. I mean, you
14 know what, ask them why they don't something in these
15 cases.
16 Q Going back to Columbus, Mississippi, was the
17 source of the exposure to the population on your study,
18 the continuing operations of the wood treating plant or
19 the historical operations of the wood treating plant or
20 both?
21 A Both. It is just like the Koppers' case in
22 Grenada. The children played on the wood in the drying
23 or curing areas, whatever you want to call it, played in
24 the ditches that were loaded with contaminants. And
25 they found dioxin and PAH levels that were as high or

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1 higher than Grenada in the ditches and soil around those
2 homes.
3 The defendants actually did dioxin levels in
4 the homes. They did wipe samples on the kitchen counter
5 parts and different parts of the house and found dioxin
6 in the homes. So there was historical as well as
7 current exposure.
8 Q And as far as you know, was the -- strike that.
9 The plant has been closed down; right?
10 A The plant was closed shortly after the case
11 settled.
12 Q Was the plant remediated or has the plant yet
13 been remediated?
14 A I don't know.
15 Q Do you know whether the neighborhood was
16 remediated or whether this ditcho got remediated?
17 A I don't know. I believe it was recommended by
18 myself and others. The homes that are immediately
19 adjacent to the plant, a number of those homes had been
20 purchased by the plant because of the high contamination
21 and the dirt and the house dust.
22 And some of the other homes a block away or a
23 across the street even -- as far as I know, the last
24 time I was there which was many years -- were still
25 there.

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1 Q Do you believe that the people who lived in
2 your study area even today have a higher risk of cancer
3 as a result of ongoing exposure to dirt and soil and
4 things like that in the neighborhood?
5 A I don't know. I do know that we are looking
6 seriously at that question in Grenada, and that is the
7 reason for this affidavit, is that we are concerned even
8 if the plant were to stop operating tomorrow, the amount
9 of contamination in the homes and in the soil around the
10 homes is dangerous and it should be remediated.
11 Q Do you believe that some of the people who
12 formed the study population represented in your Health
13 Effects paper who weren't sick at the time that you
14 published your paper continue to be at a high risk for
15 cancer in the future?
16 A Oh, yeah, I think that is true. I just don't
17 know what their current exposure is since the plant
18 closed or opportunities of exposure has diminished.
19 I mean, when they were actively operating, the
20 people were just like in Grenada, complaining of
21 symptoms, and particularly late at night when they
22 dehydrated the creosote, there would be strong, strong
23 odors.
24 And then they would have episodic showers of
25 particulates landing on their homes and cars. So when

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<p>1 they were operating, the contamination was ongoing and 2 fairly high. What ongoing contamination from house dust 3 and soil, and so on is not possible to say. 4 Q The question, I think you've answered it, but 5 it was slightly different. Just so we are clear, not 6 ongoing contamination, but ongoing risk as a result of 7 historical contamination? 8 A Oh, yes, that is definitely present. 9 Q What, if anything, has been done by the 10 Department of Health or another agency? What has been 11 done to try to mitigate that risk? 12 A I am not aware. I just know some money was 13 given to the people to pay for medical and monitoring of 14 medical care. I. 15 Don't know if anyone has done any proactive 16 health promotion or health screening or risk assessment 17 at the present time. 18 Q Do you know how many of these people who were 19 covered by the Columbus, Mississippi study, this 20 1200-some people, have since moved out of Columbus, 21 Mississippi? 22 A Some of them have, but I don't have any data on 23 that. Some of them got some money and used the money to 24 move because they realized it is not the greatest place 25 to be, but I don't know of any statistics on that.</p> <p style="text-align: right;">1173</p>	<p>1 In other words, it was on the western side of 2 town and the wind blew more than any other time from the 3 west to the east. And so they actually got some 4 downstream pollution from the paper mill. 5 So they didn't have no exposure. They had some 6 exposure that probably did impact their health, but when 7 we compared them to the people in Columbus, it was clear 8 that the people in Columbus were much, much more 9 affected. 10 Q And paper mills are thought to be at last a 11 source of dioxin pollution; correct? 12 A That's correct. 13 Q And that is as a result of the bleach that is 14 used in making paper? 15 A Yes. The so-called craft process uses 16 chlorine, and then in the process of heating it and 17 mixing it with various organic compounds, the dioxins 18 are formed. Realizing, that Dioxins are toxic in the 19 parts of trillion range. It doesn't take much to make 20 an adverse effect. 21 Q I think you said you found out about this paper 22 mill after the study was already done? 23 A Yes. We drove around the town and we did not 24 see any factories or hazardous waste sites and we asked 25 the residents and the preachers and the local church and</p> <p style="text-align: right;">1175</p>
<p>1 Q Have you ever heard a lot of them moved out or 2 just a few of them? 3 A Haven't heard. 4 Q No qualitative view on that? 5 A Haven't heard. 6 Q Let's then talk about your control population 7 for your Health Effects paper. The control population 8 was identified in Selma, Alabama; right? 9 A Right. 10 Q How was Selma, Alabama chosen as the town to 11 find a control population? 12 A Well, it is approximately the same size. It 13 has approximately the same demographics. It has the 14 same social economic profile. It matched in many, many 15 ways. 16 In fact, I believe the defendants hired an 17 epidemiologist to see what the best matched town was and 18 found that, I think, Selma was among the best matched 19 towns around that could be picked. We looked at a whole 20 bunch of towns before we picked Selma. 21 After we did the study, we realized that it 22 wasn't a perfect control because there was a huge -- 23 probably one of the largest paper mills in the south 24 five miles outside of Selma and Selma was down wind from 25 that facility.</p> <p style="text-align: right;">1174</p>	<p>1 we talked to everybody. 2 And they said, do you have any pollution in 3 this town? 4 No, we don't have any pollution. It is a nice, 5 clean town. There is no industry here. It's very, very 6 nice. 7 They forgot five miles outside of town, it is 8 not that far, but they didn't think of it as being part 9 of their town. They thought of it as being far away. 10 Q Couldn't you smell it? 11 A No, we never smelled it. 12 Q Paper mills have a distinct smell. 13 A I understand that. We did not smell it while 14 we were there. And no one described having problems of 15 odor from the plant. And maybe the exposure was not 16 sufficient to reach them. 17 But if you look at the data in the literature, 18 you would be a little bit concerned that five miles down 19 wind would still be at risk. 20 Q So you identify Selma, Alabama as a town likely 21 to have a population which is similar and could either 22 be the basis for the selection of controls. What was 23 the next step to actually recruit the control population 24 in Selma? 25 A Well, as we said in the paper, we went to a</p> <p style="text-align: right;">1176</p>

<p>1 local church. Actually, went to two or three and the 2 preachers helped us recruit people that matched our 3 people social/economically. 4 I think we originally had about 500 people that 5 we did the questionnaire on and matched our people to 6 the subcategory, the 110 that we used, as the more 7 detailed controls for the physiologic testing and the 8 history and physical by the doctors. 9 Q How many people filled out the questionnaire? 10 A I think the number was 479, I think. 11 Q In Selma? 12 A Yes. 13 Q 479. And 110 of those met your matching 14 criteria? 15 A And then we sub -- well, they matched. There 16 were some slight differences when we finally got down to 17 doing the analysis, but basically, they matched in terms 18 of race, gender, age, socioeconomic status. And then we 19 did physiologic studies, you know, on a random group of 20 110 out of the 479. 21 Q Right. I was just wondering why you didn't 22 go -- keep going in Selma until you got 240 or at least 23 220 people to match up with your Columbus cohort? 24 A It was dictated by economics. And Dr. Thorton 25 felt that that would be a sufficient number to get</p> <p style="text-align: right;">1177</p>	<p>1 A After the questionnaire? 2 Q Well, after you filled in your cells, you had 3 your 110 people. 4 A Well, first, we did the questionnaire on them, 5 the 449, by the same methods that we had described which 6 is in groups and then the 110, were brought in and they 7 had a history and physical and a battery of tests, just 8 like we did the other people. 9 Q So they actually had medical testing, the 110? 10 A Correct. 11 Q You attempted to match your cases and controls 12 per gender; is that right? 13 A Yes. 14 Q But then 34 percent of the cases were male and 15 29 percent of the controls were male; is that correct? 16 A Yeah, there is a slight difference there. 17 Q Is that difference significant to you? 18 A It is harder to get men to participate in these 19 studies. The difference was not statistically 20 significant. 21 Q Right. Now, the cases that you controlled that 22 you matched was age; is that right? 23 A Yes. 24 Q Why are the women in the controlled group on 25 average five-years older than the cases?</p> <p style="text-align: right;">1179</p>
<p>1 statistical significance if the differences were 2 reasonably wide. 3 And indeed, he was right. We got quite a large 4 amount of statistical significance. 5 Q And then your selection matching criteria for 6 the Selma population was age, sex, and socioeconomic 7 status? 8 A And race. 9 Q And race. And those are the four criteria? 10 A Yes, Socioeconomic status, age, sex, and race. 11 Q And I'm sorry if I am being obtuse, but how do 12 you do this? How do you go from your 400 or so people 13 who filled out questionnaires in Selma to the 110? 14 A By -- we got everybody on the list. We called 15 people until we filled up our cells just like we did in 16 the exposure numbers. You want to have somebody who is 17 between the ages of 30 and 35 and who is a male. 18 You put -- you call somebody. Do you match any 19 of our open slots? And then if they did, we would put 20 them in the slot and ask them to participate. 21 Q You worked on the list until you filled your 22 baskets? 23 A Right. 24 Q And then what is the next step for the people 25 at Selma? What did you do with them after that?</p> <p style="text-align: right;">1178</p>	<p>1 A Where are you looking? I am looking at Table 2 2. The females were 41 and the exposed 46 in the 3 controls. 4 Q The difference of five years. 5 A You are asking me why that is? Yeah. 6 Q If you were matching them, how did that happen? 7 A Well, we were matching them in five year 8 groups. The difference is not statistically significant 9 because it is a continuous variable. You know, if you 10 are in the 35 to 40 category, and you have more people 11 at 39 in one group and more people at 36 in another, you 12 know, you are going to get a difference; and it works 13 out this way. 14 This business of stratifying in five year 15 groups does not allow you to -- it is not a one-to-one 16 match, but it is close. 17 Q When you are doing your matching, the baskets 18 that you use for the matching and the categories that 19 you are using for the matching is five-year blocks; 20 correct? 21 A That is what we did, yes. 22 Q And when you report the data out, you just give 23 an average age; is that right? 24 A That's right. 25 Q Didn't over half of the men in the control</p> <p style="text-align: right;">1180</p>

1 population have some college education?
 2 A I don't remember. There was clearly a
 3 difference of education levels between the controls and
 4 the exposed for the males.
 5 Q Assuming that to be true is that a significant
 6 difference?
 7 A Probably. And it may well be. I don't know if
 8 we discussed this or not in the paper, but we think this
 9 might be an exposure effect.
 10 In other words, these are all poor blacks. And
 11 the fact that their educational achievement was
 12 significantly lower may well be because of the exposure.
 13 In all of the statistical analysis where tests
 14 were sensitive to education, we adjusted for education.
 15 Q How?
 16 A Well, you use a multiple variant analysis and
 17 adjust exposure and control for statistically the
 18 educational level. Education level being a continuous
 19 variable.
 20 Q Were cases and controls matched for smoking?
 21 A Yes.
 22 Q Why wasn't smoking broken out by gender?
 23 A I don't recall offhand.
 24 Q Did the exposed group have a longer smoking
 25 history generally?

1181

1 A Yes. It was two years longer, but, again, not
 2 statistically significant. But, again, where
 3 appropriate, we would adjust for smoking and not
 4 smoking.
 5 I think we actually had a continuous variable
 6 for smoking as well which we can put into the
 7 multivariate equation. In other words, we asked how
 8 many cigarettes they smoked, and when they started and
 9 when they stopped, so that we could actually calculate a
 10 accurate total.
 11 Q So you tried to control for smoking that way?
 12 A Yes, we did that.
 13 Q Also, look at Table 5 for a second, what is the
 14 difference between chronic bronchitis by history and
 15 chronic bronchitis diagnosed by an M.D.?
 16 A There is some questions that we asked them
 17 about the production of cough, cough productive of
 18 phlegm, and the duration. And if they had recurrent
 19 cough, productive cough for more than I think it is two
 20 months for two or three years in a row, that would be
 21 chronic bronchitis by history.
 22 Whereas there is another question in the
 23 questionnaire asking them if they had been diagnosed
 24 with chronic bronchitis by an M.D., thus, that is the
 25 difference in the two groups.

1182

1 Q Did you actually then make a diagnosis of
 2 chronic bronchitis based on the history that the
 3 questionnaire recipients gave you?
 4 A Yes, we would make a diagnosis of chronic
 5 bronchitis based on the questionnaire responses.
 6 Q You got asthma diagnosed by an M.D.,
 7 13.1 percent in the exposed and then 40 percent asthma
 8 by history of wheezing. Do you see that?
 9 A Yes.
 10 Q Tell me about that. How did you diagnose
 11 asthma by a history of wheezing?
 12 A They answered a questionnaire question: Do you
 13 wheeze? And are you normal between attacks? And
 14 40 percent of the people had said that they subjectively
 15 experience wheezing, but only 13 percent said that they
 16 were diagnosed with asthma by a doctor.
 17 Q It says, "Asthma diagnosed by a doctor." Is
 18 that reflective of a questionnaire answer or did you
 19 actually look at medical records to confirm the
 20 diagnosis?
 21 A That was only by the questionnaire.
 22 Q For any of these people in the exposed
 23 population, did you look at medical records and confirm
 24 the statements that they made in their questionnaire
 25 answers?

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1 A In some of the people that we ultimately worked
 2 up for trial, we had medical records to review. We did
 3 not review the medical records of this whole population,
 4 no.
 5 Q Is it significant to you in Table 5 that asthma
 6 in cases and controls occurred at a nearly identical
 7 rate when diagnosed by an M.D. but there was a nearly
 8 four-fold difference in self-reporting?
 9 A Well, it is what it is. I mean, I guess, it is
 10 a little bit surprising that there would be such a large
 11 difference; but it is a three-fold difference really.
 12 But I don't -- I have actually seen this before
 13 in other groups we have looked at. If they live in a
 14 contaminated area where there is a lot of heavy air
 15 pollution, they will report wheezing. It doesn't reach
 16 the level where they go to the doctor, but it does
 17 result in symptoms.
 18 So, I guess, you can say that it is not
 19 uncommon when you have a lot of air pollution, that you
 20 have mild wheezing, which would be indicative of asthma
 21 by definition. That is how we define it.
 22 Q Is there a difference between wheezing and
 23 asthma?
 24 A Not really. If you have wheezing and you are
 25 normal between attacks, that by definition means you

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